MI/DEQ/WB-07/053

MICHIGAN FISH CONTAMINANT MONITORING PROGRAM

2006 ANNUAL REPORT

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BCCs	Bioaccumulative Chemicals of Concern
CWA	Clean Water Act
DDD	1,1-bis(4-chlorophenyl)-2,2-dichloroethane
DDE	dihydrochloride
DDT	dichlorodiphenyl trichloroethane
FAWCAC	Fish and Wildlife Contaminant Advisory Committee
FCMP	Fish Contaminant Monitoring Program
GLEAS	Great Lakes and Environmental Assessment Section
HRAL	Health Risk Assessment Laboratory
MDA	Michigan Department of Agriculture
MDCH	Michigan Department of Community Health
MDEQ-WB	Michigan Department of Environmental Quality-Water Bureau
MDNR	Michigan Department of Natural Resources
PCB	polychlorinated biphenyl
PPB	parts per billion
PPM	parts per million
RPC	Research Productivity Council
TCDD	Total 2,3,7,8-tetrachlorodibenzo-p-dioxin
TEQ	toxic equivalent
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
USFDA	United States Food and Drug Administration
WQS	Water Quality Standards

SECTION 1.0

INTRODUCTION

The Michigan Department of Environmental Quality-Water Bureau (MDEQ-WB) has analyzed over 17,000 fish tissue samples collected since 1980. The MDEQ-WB conducts fish contaminant monitoring to address five goals. The first goal is to support the development of the Michigan Department of Community Health's (MDCH's) *Michigan Fish Advisory*. Edible portion sample results are used by the MDCH to issue general and specific advisories against eating certain sport fish from Michigan's surface waters. The second goal is to support the regulation of commercial fisheries in the waters of the state. The Michigan Department of Agriculture (MDA) uses edible portion monitoring results to regulate sales of the commercial catch. The third goal of the fish contaminant monitoring is to identify spatial differences and temporal trends in the quality of Michigan's surface waters. Temporal trends and spatial differences are examined by collecting whole fish and caged fish samples in addition to the edible portion samples. Finally, the fourth goal is to evaluate whether existing pollution prevention, regulatory, and remedial programs are effectively reducing chemical contamination in the aquatic environment. To achieve this goal, fish tissue samples are used to identify waters that are attaining or not attaining the designated uses described in Michigan's Water Quality Standards (WQS), identify sources of pollutants, and track the effectiveness of remedial actions.

Fish contaminant analyses are limited to chemicals with high bioaccumulation potential in fish tissue. The presence of even extremely low concentrations of some bioaccumulative pollutants in surface water can result in fish tissue concentrations that pose a human or wildlife health risk. The list of chemicals to be measured is modified to include emerging contaminants when the potential presence of the contaminant in fish tissue becomes apparent.

Several state and federal agencies and tribal organizations assist with the MDEQ-WB's fish contaminant monitoring efforts by collecting or analyzing samples and data. These include the Michigan Department of Natural Resources (MDNR), the MDCH, the MDA, the United States Environmental Protection Agency (USEPA), the United States Fish and Wildlife Service, the Grand Traverse Bay Band of Chippewa and Ottawa, and the Great Lakes Indian Fish and Wildlife Commission. In addition, sample collection plans and analytical results are reviewed by Michigan's Fish and Wildlife Contaminant Advisory Committee (FAWCAC). The FAWCAC members include representatives from all Michigan agencies involved in fish and wildlife contaminant monitoring (MDEQ-WB, MDCH, MDA, and MDNR). The primary role of the FAWCAC is to coordinate fish and wildlife monitoring conducted by state agencies. Also, the FAWCAC reviews fish and wildlife consumption advisories proposed by state agencies in Michigan.

Fish contaminant data are presented annually in staff reports. The objectives of the Michigan Fish Contaminant Monitoring Program (FCMP) 2006 Annual Report (2006 Annual Report) are as follows:

- Summarize the results of the available edible portion fish tissue analyses, identify sites where modifications to the MDCH's *Michigan Fish Advisory* should be considered, identify water bodies monitored in 2004 and 2005 that are supporting and not supporting the fish consumption designated use described in the WQS, and identify contaminant trends where possible.
- Summarize the results of whole fish tissue analyses and identify any spatial or temporal contaminant trends.
- Identify spatial or temporal trends that can be attributed to specific pollution control activities.

Prior to 1986, Michigan conducted fish contaminant studies on an as needed basis primarily to address specific problems. In 1986, a comprehensive program was initiated to assess the degree of chemical contamination in fish from the surface waters of the state. Michigan's fish contaminant data have been compiled into a large database and are available online at www.deq.state.mi.us/fcmp/. Contaminant data are also available in staff reports (MDNR, 1986a, 1986b, and 1989; Duling, 1988; Duling and Benzie, 1989 and 1990; Waggoner, 1991 and 1992; Wood, 1993 and 1994; Wood et. al., 1995; Day and Holden, 1996; Day, 1997, 1998, 1999, and 2002; Day and Walsh, 2000 and 2001; Day, Bohr and Ramirez, 2004; Day and Bohr, 2005; and Bohr and Zbytowski, 2006). In addition, inventories of fish contaminant monitoring locations sampled between 1980 and 2005 are provided in Appendices A, B, and C.

SECTION 2.0

METHODS

The 2006 Annual Report includes the analytical results available by January 15, 2007, for samples collected prior to January 1, 2006, which were not presented in earlier annual reports. A list of water bodies and species included in this annual report is provided in Appendix D. Raw data from these sites are included in Appendix E (available upon request).

A total of 1,147 fish were collected from inland lakes, rivers, and the Great Lakes and connecting channels during 2005, along with 38 fish collected during 2004. Many of these fish were combined into composite samples, and a total of 766 samples were analyzed. The samples included 16 species collected from 65 locations. Approximately 68 percent (%) of the samples were processed as edible portions to support the development and review of fish consumption advisories, and to determine WQS attainment status. The remaining samples were collected to support the other goals of the FCMP.

2.1 EDIBLE PORTION AND WHOLE FISH COLLECTION AND PROCESSING

The MDNR-Fisheries Division and the MDEQ-WB collected the majority of the fish using standard fish sampling techniques determined to be appropriate for individual water bodies. These techniques included electrofishing, trap nets, gill nets, and trawling. In addition, private consultants and tribal organizations collected samples for the program.

The MDEQ-WB processed fish in accordance with the Great Lakes and Environmental Assessment Section (GLEAS) Procedure 31 (available upon request). Each fish was measured (total length) and weighed. Fish were prepared as standard edible portions (Table 1) or whole fish. Each sample was individually wrapped in aluminum foil, placed in a plastic bag, appropriately labeled, and frozen until analyzed.

2.1.1 Edible Portion Monitoring

This report summarizes the analyses of edible portion samples of 492 fish collected from 33 locations in 2005, and 38 fish collected from 3 locations in 2004. These samples included 15 species of fish. The edible portion sample locations are illustrated in Figure 1. Edible portion sampling was often targeted toward sites of known or suspected contamination, sites popular with sport anglers, and sites with public access.

2.1.2 Whole Fish Trend Monitoring

The MDEQ-WB coordinates the collection and analysis of whole fish from 26 locations as part of an effort to measure spatial and temporal trends in contaminant concentrations (Table 2; Figure 2). Samples are collected from each site every 2 to 5 years. Select species of adult fish are targeted for collection and analyses. Species and locations were selected to complement and avoid duplication with the USEPA's Great Lakes whole fish trend monitoring program.

A total of 182 fish tissue samples were collected from 15 trend sites in 2005 (Appendix E, available upon request). Largemouth bass were collected from Gun and Gull Lakes; carp were collected from the Grand, Kalamazoo, Muskegon, St. Clair, and St. Joseph Rivers as well as Lake Huron at Saginaw Bay, Lake Michigan at Little Bay De Noc, and Lake St. Clair; lake trout were collected from Lake Huron at Thunder Bay; and walleye were collected from Lake Gogebic, Lake St. Clair and South Manistique Lake as well as Lake Huron at Saginaw Bay and

Thunder Bay, Lake Michigan at Little Bay De Noc, and the St. Marys and Detroit Rivers. All 26 trend sites have been sampled at least 3 times since 1990, except the Manistee, Manistique, and Menominee Rivers. Trend monitoring sites, collection dates, and species are listed in Appendix B.

Since 1990, lake trout, walleye, or largemouth bass were collected from 8 inland lake trend monitoring sites (Table 2). Gun, Gull, and South Manistique Lakes were sampled 7 times; Lake Gogebic was sampled 6 times; Higgins, Houghton, and Pontiac Lakes were sampled 5 times; and Grand Sable Lake was sampled 3 times.

Whole carp or redhorse sucker were collected from 8 river trend monitoring sites since 1990 (Table 2). The Kalamazoo River was monitored 8 times; the Muskegon River was monitored 7 times; the St. Joseph and Grand Rivers were monitored 6 times; the Raisin River was monitored 5 times; the Manistee, Manistique, and Menominee Rivers were each monitored 2 times.

Ten trend monitoring sites were established in the Great Lakes or connecting channels (Table 2). Carp were monitored at 9 locations, walleye were collected from 8 locations, and lake trout were collected from 3 locations since 1990.

2.2 CAGED FISH BIOCONCENTRATION STUDIES

The MDEQ-WB uses caged fish to identify sources of bioaccumulative contaminants and identify spatial trends in contaminant concentrations. Caged fish studies are a particularly useful water quality monitoring tool because the test fish are exposed to the water column under relatively controlled conditions. Some contaminants accumulate in the test fish at levels that may be orders of magnitude above the concentrations in the ambient water. The relatively high concentrations in the test fish tissue are easier and cheaper to measure than the relatively low concentrations typically found in the ambient water.

The MDEQ-WB performed all caged fish studies in accordance with the GLEAS Procedure 62 (available upon request). The channel catfish used as test organisms in the experiments were purchased from a commercial fish farm. Control samples were obtained at the beginning of the test period by randomly selecting a subset of channel catfish and combining them into 4 composite samples of whole fish. The remaining channel catfish were held in stainless steel cages at the test sites for 28 days. At the end of the test period, the fish were removed from the cages and divided into composite samples of whole fish. Each sample had a minimum total weight of 40 grams, and the number of composites and number of fish per composite was determined by the size of the fish and the number surviving to the end of the 28-day test. Each composite sample was wrapped individually in aluminum foil, placed in a separate plastic bag, labeled, and frozen until analyzed.

Caged fish studies were conducted in the Black Creek, Escanaba, Macatawa, Ottawa, and Saginaw River watersheds in 2005. Funds from the Saginaw River and Bay Natural Resource Damage Assessment settlement and Clean Michigan Initiative were used to support analyses of caged fish tissue samples at a contract laboratory.

Three sites were monitored in the Black Creek in Muskegon County (Figure 3). Two sites were monitored in the Escanaba River (Figure 4). Three sites were monitored in the Macatawa River from Maple Island Road to Lake Macatawa (Figure 5). One site was monitored in the Ottawa River (Figure 6). Seven sites were monitored in the Saginaw River from upstream of Middle Ground Island to Gull Island in Saginaw Bay (Figure 7).

An inventory of all caged fish bioconcentration studies conducted since 1987 is presented in Appendix C.

2.3 CHEMICAL ANALYSES

Fish tissue samples collected in 2005 were analyzed by several laboratories, including the MDCH-Health Risk Assessment Laboratory (HRAL), Eno River Laboratories (formerly Triangle Laboratories), the University of Minnesota, and Research Productivity Council (RPC). Each of these analytical laboratories has quality assurance programs and uses peer-reviewed methods of digestion, extraction, and quantification.

The MDCH-HRAL analyzed the majority of the fish tissue samples collected in 2005 and 2004. A total of 672 samples from 2005 and 38 samples from 2004 were submitted for analyses. A total of 173 edible portion samples were analyzed for mercury only. The remaining fish tissue samples were analyzed for mercury, percent lipids, 25 organic chemicals (Table 3), and polychlorinated biphenyl (PCB) congeners (Table 4). The results are summarized in Section 3.1.

Analyses of chlorinated dioxin and dibenzofuran congeners (Table 5) were performed on a subset of edible portion fish tissue samples. Eno River Laboratories analyzed dioxin and dibenzofuran congeners in 28 samples and the results are summarized in Section 3.1. In addition, the Eno River Laboratories determined coplanar PCB congener (Table 6) concentrations in 20 edible portion fish samples from Saginaw Bay, and the results are available upon request.

The RPC analyzed mercury and organic contaminants in 56 caged fish tissue samples collected in 2005. The results of the 2005 caged fish analyses conducted by RPC are summarized in Section 3.2. The 2005 samples were analyzed for the contaminants listed in Table 7. In addition, RPC analyzed 33 samples from the Escanaba and Saginaw River caged fish sites for chlorinated dioxin and dibenzofuran congeners (Table 5), and 25 samples from the Saginaw River caged fish sites for coplanar PCB congeners (Table 6).

A total of 86 chinook salmon were collected from 6 Lake Huron and Lake Michigan tributaries in 2005 as part of a Great Lakes trend monitoring program implemented by state and federal agencies. The chinook salmon were combined into 18 edible portion composite samples. These samples were sent to the University of Minnesota for analyses. The results were not available for inclusion in this report.

Total mercury is referred to as “mercury” throughout the report. In addition, the MDCH trigger levels for mercury (Section 2.5) are based on total mercury concentrations.

Toxaphene is referred to as "apparent toxaphene" throughout the report. The MDCH-HRAL analytical method can identify a residue with chromatographic characteristics similar to toxaphene. However, the method cannot specifically identify the residue as the pesticide toxaphene.

Finally, the MDCH-HRAL does not report concentrations below the quantification level but above the detection level for mercury and the organic parameters listed in Table 3. As a result, concentrations of these parameters that are below the quantification level are coded with a “K” in Appendix E (available upon request). In these cases, the “K” coded concentrations represent the MDCH-HRAL’s quantification levels. However, “K” codes assigned to dioxin, furan, and PCB congeners indicate that concentrations were below the detection level while “J” or “NQ”

codes indicate that concentrations were above the detection level but did not meet all of the quantification requirements. In these cases, the “K” coded concentrations represent the laboratory detection level.

2.4 SUMMARY STATISTICS

The average and median contaminant concentrations were calculated for each species from each site (Appendix E, available upon request). In some cases, one or more samples from a particular site had contaminant concentrations that were less than the quantification level. In these cases, calculating the true average contaminant concentration was not possible. Therefore, average contaminant concentrations were calculated using half of the quantification level in place of the sample concentrations that were below the quantification level. The calculated average was then marked with a footnote to indicate that estimated values were used when quantitative concentrations were not available. If all of the concentrations were below the quantification level, then the mean was reported as half of the quantification level and the median was reported as less than the quantification level.

Total PCB concentration was estimated by summing the concentrations of PCB congeners. Individual congeners below the detection level were assigned a concentration equal to 0 for the purpose of calculating a total PCB concentration. Also, congener analyses that did not meet retention time criteria or were subject to analytical interference were assigned a concentration equal to 0 for the purpose of calculating a total PCB concentration. If the results of an individual congener analysis did not meet all of the quantification requirements, then the congener was assigned a concentration equal to the estimated concentration for the purpose of calculating a total PCB concentration. If all of the congeners were below the detection level, then the total PCB concentration was reported as less than the detection level of the individual congeners.

Total chlordane concentration was estimated by summing the concentrations of 5 isomers: *alpha*-chlordane, *gamma*-chlordane, *cis*-nonachlor, *trans*-nonachlor, and oxychlordane. In some cases, individual isomers were below the quantification level. Individual isomers below the quantification level were assigned a concentration equal to 0 for the purpose of calculating a total chlordane concentration. If all 5 isomers were below the quantification level, then the total chlordane concentration was reported as less than the quantification level of the individual isomers.

Total dichlorodiphenyl trichloroethane (DDT) concentrations were calculated by summing concentrations of the para, para’ and ortho, para’ forms of the following chemicals: DDT dihydrochloride (DDE), and 1,1-bis(4-chlorophenyl)-2,2-dichloroethane (DDD). Individual chemicals below the quantification level were assigned a concentration equal to 0 for the purpose of calculating a total DDT concentration. If all 6 components were below the quantification level, then the total DDT concentration was reported as less than the lowest quantification level of the metabolites.

Total 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxic equivalents were calculated pursuant to the 1989 update of the "Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and Dibenzofurans" (USEPA, 1989). The concentrations of individual dioxin and dibenzofuran congeners in a fish sample were multiplied by toxic equivalency factors and the resulting products summed to calculate a 2,3,7,8-TCDD toxic equivalent (TEQ) concentration. Individual congener concentrations less than the detection level were assigned a value of 0 for the purpose of calculating the dioxin TEQ.

Calculated values presented in Appendix E (available upon request) were not rounded to significant figures. All calculated values are identified in Appendix E.

2.5 FISH CONSUMPTION ADVISORY TRIGGER LEVELS

The MDCH is responsible for establishing, modifying, or removing sport fish consumption advisories in Michigan. The MDCH uses fish consumption advisory "trigger levels" to assess the need for advisories (Table 7). These trigger levels have a variety of origins. The United States Food and Drug Administration (USFDA) developed most of the trigger levels for chlorinated organic chemicals. Dioxin TEQ and mercury trigger levels were developed by the MDCH. Finally, the Great Lakes states and the USEPA developed the total PCB trigger levels used to establish advisories for women of childbearing age and children less than 15 years of age. The underlying risk assumptions used to develop each of these trigger levels are different and the criteria used to determine consumption advisories vary with the contaminant and segment of population covered by the advisory.

The fish consumption advisories are developed based on an evaluation of the relationship between contaminant concentrations and trigger levels across all size ranges of fish of a given species taken from specific locations. Where possible, linear regression analyses are used to predict lengths at which the concentrations in fish species are likely to exceed trigger levels. However, contaminant concentrations and fish total length data either do not often conform to the underlying assumptions of this statistical method or the method does not produce a statistically significant line. In those cases, the appropriate advisory is determined using either median concentrations or the percentage of samples exceeding the trigger level, depending on the contaminant being considered.

The MDCH prefers a data set with a minimum of 10 samples before establishing or modifying fish consumption advisories. However, best professional judgment is applied when evaluating smaller data sets.

The MDCH trigger levels and procedures are described in further detail below:

2.5.1 Fish Consumption Advisory Trigger Levels for Chlorinated Organic Contaminants Other Than PCBs

The MDCH issues fish consumption advisories based on either linear regression analyses or the percentage of samples that exceed the trigger levels presented in Table 7. The general population is advised to eat no more than 1 meal per week when concentrations in more than 10% of the samples from a particular species of fish of a given length range exceed the trigger level. A "no consumption" advisory is issued if concentrations in 50% or more of the fish sampled exceed the trigger level. In addition, the MDCH advises women and children against eating any fish when concentrations in more than 10% of a particular species of fish of a given length exceed the trigger level.

Either linear regression analyses or percentages were used to make recommendations to the MDCH regarding specific changes to the *Michigan Fish Advisory*. When linear regression analysis was not appropriate, the percentages of samples exceeding trigger levels were calculated. The results are presented in Section 3.1.

2.5.2 Fish Consumption Advisory Trigger Levels for Total PCBs

The MDCH uses the USFDA's 2.0 parts per million (ppm) trigger level for total PCB concentrations when developing advisories for the general population. The MDCH advises the general population to eat no more than 1 meal per week when concentrations in more than 10% of the samples from a particular species of fish of a given length range exceed the trigger level. In addition, the MDCH advises the general population against eating any fish when concentrations in 50% or more of the samples exceed the trigger level.

Again, either linear regression analyses or percentages were used to make recommendations to the MDCH regarding specific changes to the *Michigan Fish Advisory*. When linear regression analysis was not appropriate, the percentages of samples exceeding trigger levels were calculated. The results are presented in Section 3.1.

In 1998, the MDCH adopted a new advisory protocol for women of child bearing age and children less than 15 years old. The protocol includes 5 consumption advisory categories based on concentrations of total PCBs. Fish species and size classes are placed into the consumption advisory categories based on linear regression analyses or median total PCB concentrations. The results are presented in Section 3.1.

2.5.3 Fish Consumption Advisory Trigger Levels for Mercury

The MDCH uses 2 trigger levels to assess the need for fish consumption advisories based on mercury (Table 7). Mercury concentrations are plotted with respect to length. A "restrict consumption" advisory is issued for lengths above which the mercury concentrations exceed the 0.5 ppm trigger level. A "no consumption" advisory is issued for lengths above which the mercury concentrations exceed 1.5 ppm. When linear regression analysis was not appropriate, median concentrations were used to place species and size classes into appropriate advisory categories. The results are presented in Section 3.1.

The MDCH advises the general population to eat no more than 1 meal per week of fish covered by a "restrict consumption" advisory. Women of child bearing age and children under age 15 are advised against eating more than 1 meal per month of fish covered by a "restrict consumption" trigger level.

Finally, the MDCH issued a statewide advisory covering certain predator species from all inland lakes and reservoirs. According to the MDCH, no one should eat more than 1 meal per week of fish of the following species and sizes: rock bass, yellow perch, or crappies over 9 inches in length; and largemouth bass, smallmouth bass, walleye, northern pike, or muskellunge of any size. Also, the MDCH advises mothers who are breast feeding, pregnant women, women who intend to have children, and children under age 15 against eating more than 1 meal per month of these fish.

SECTION 3.0

RESULTS AND DISCUSSION

3.1 EDIBLE PORTION MONITORING

The 2006 Annual Report includes the analytical results available by January 15, 2007, for edible portion fish samples collected in 2004 and 2005. A total of 510 edible portion fish tissue samples are summarized in this report. This includes samples from 15 species and 33 locations (Figure 1).

3.1.1 General Highlights

- Several chemicals analyzed were not quantified in any of the fish samples, including aldrin, heptachlorostyrene, lindane, pentachlorostyrene, terphenyl, and toxaphene. However, the breakdown product of aldrin (i.e., dieldrin) was quantified in fish tissue samples from 15 of 18 locations in which they were analyzed (Table 9).

- Mercury was quantified in every sample analyzed (Table 9). The highest concentrations were found in top predator species from inland lakes and impoundments.

- Dioxin TEQ concentrations were quantified in every sample from the 2 locations where samples were analyzed for dioxin and dibenzofuran congeners (Table 9). However, the quantification levels for dioxin and dibenzofuran congeners are three to four orders of magnitude lower than the quantification levels for other organic contaminants (Tables 3 and 5). Therefore, dioxin and dibenzofuran congeners were quantified more frequently than many of the other organic contaminants.

- The maximum concentrations of most chlorinated organic contaminants were found in fish from the Great Lakes or locations with access to the Great Lakes (Table 9). Lake Macatawa carp had the highest concentrations of several organic contaminants.

- Total PCB concentrations in northern pike and white sucker from the Rouge River, Newburgh Lake, have declined significantly since a sediment removal project was completed in 1999. In addition, PCB concentrations in carp collected downstream of Newburgh Lake, but upstream of the Ford Dam (Dearborn), have also declined significantly since completion of the project.

3.1.2 Comparison to the MDCH Sport Fish Consumption Advisory Trigger Levels

Contaminant concentrations in edible portion samples were compared to trigger levels to assist the MDCH with their annual review of the sport fish consumption advisories. Species and sites covered by existing advisories were highlighted when new concentration data did not exceed respective trigger levels. In addition, species and sites were identified when new concentration data exceeded trigger levels. Plots of contaminant concentration versus fish total length were generated to assist with data analysis in cases where either contaminant concentrations exceeded trigger levels, or the site and species are covered by an existing advisory.

In a few cases, linear regression analyses were used to determine the need for an advisory. However, the contaminant and length data did not often conform to the underlying assumptions of linear regression. In some cases, median concentrations were calculated and compared to trigger levels to determine the need for consumption advisories, while percentages of samples

exceeding trigger levels were calculated in other cases. A more detailed discussion of the trigger levels and criteria used to develop advisory recommendations is presented in Section 2.5.

3.1.2.1 General Highlights of the Trigger Level Comparisons

General highlights of the trigger level comparisons are presented below, followed by site-specific evaluations and recommendations:

- Total chlordane, total DDT, dieldrin, heptachlor+heptachlor epoxide, and mirex trigger levels were not exceeded in any sample analyzed.

- Total PCB concentrations were greater than or equal to the women and children trigger level in 207 of 510 (41%) samples. Concentrations were greater than or equal to the women and children trigger levels in fish from 13 of 17 (76%) locations (Table 10). The 2004 MDCH *Fish Consumption Advisory* includes women and children advisories due to elevated PCBs for 10 of the 13 locations.

- Total PCB concentrations were greater than or equal to the general population trigger level in 7 of 510 (1.4%) samples. Concentrations were greater or equal to the general population trigger level in fish from 3 of 17 (17%) locations (Table 10). The 2004 MDCH *Fish Consumption Advisory* includes general population advisories in all 3 locations.

- Mercury concentrations were greater than or equal to the "restrict consumption" trigger level in 136 of 510 (27%) samples from 27 of 33 (82%) locations (Table 11). The 2004 MDCH *Fish Consumption Advisory* includes either statewide or specific advisories due to elevated mercury concentrations for 24 of the 27 locations.

- Mercury concentrations were greater than or equal to the "no consumption" trigger level in 3 of the 510 (2%) samples. Concentrations were greater than or equal to the "no consumption" trigger level in fish from 1 of 33 (3%) locations (Table 11). Fish from that site (Craig Lake, Baraga County) are covered by the statewide mercury advisory, and more restrictive advice is recommended.

- Dioxin TEQ concentrations were assayed in carp taken from Lake Macatawa in 2005, and in walleye and yellow perch collected in Saginaw Bay in 2004. The TEQ concentrations did not exceed the trigger levels in any of 28 samples (Table 12).

- Based on the following site-specific trigger level comparisons, the MDCH should consider relaxing fish consumption advisories at 12 sites and adding or expanding advisories at 12 sites. Also, additional monitoring is recommended at 6 water bodies.

3.1.2.2 Lake Erie Watershed

Rouge River, Main Branch, Downstream of Ford Dam, Wayne County (ID 2005077)
Carp and Redhorse Sucker

Existing MDCH Advisory: No one should eat any carp or suckers from the Lower Branch of the Rouge River or from the Main Branch of the Rouge River below the Ford Dam due to elevated concentrations of PCBs.

Comparison to Trigger Levels: Ten carp ranging in length from 18 to 25 inches were collected from the Main Branch of the Rouge River downstream of Ford Dam in 2005. Total PCB concentrations exceeded women and children trigger levels in all 10 fish. Concentrations in 2 fish were in the women and children "1 meal per week" range and 8 fish were in the "1 meal per month" range (Table 10; Figure 8). The median total PCB concentration was 0.38 ppm. The existing advisory on carp in the Lower Branch of the Rouge River is based on samples collected in 1985 and 1986. Total PCB concentrations in carp have dropped significantly since then.

Ten redhorse sucker ranging in length from 10 to 14 inches were collected from the Main Branch of the Rouge River downstream of Ford Dam in 2005. Total PCB concentrations exceeded the women and children "1 meal per week" range in 5 redhorse sucker (Table 10; Figure 9) and the median concentration was 0.052 ppm.

Recommendations: The MDCH should consider removing the general population advisory on carp less than 26 inches from the Lower Branch of the Rouge River and from the Main Branch of the Rouge River below the Ford Dam. Also, the MDCH should consider relaxing the women and children advisory to no more than 6 meals per year of carp less than 26 inches from the same river segments. In addition, the MDCH should consider removing the general population advisory on sucker less than 14 inches and relaxing the women and children advisory to no more than 6 meals per year of sucker less than 14 inches.

Additional carp should be collected from the Rouge River downstream of Ford Dam to evaluate the possibility of relaxing the advisory on fish greater than 26 inches.

Rouge River, Middle Branch, Downstream of Newburgh Lake, Wayne County (ID 2005078 and ID 2005080)
Carp

Existing MDCH Advisory: No one should eat any carp from the Middle Branch of the Rouge River below Newburgh Lake due to elevated concentrations of PCBs.

Comparison to Trigger Levels: Fourteen carp ranging in length from 17 to 26 inches were collected from the Middle Branch of the Rouge River downstream of Newburgh Lake in 2005. Seven of the fish were collected upstream of Nankin Lake, and 7 were collected downstream of Nankin Lake. Total PCB concentrations exceeded women and children trigger levels in all 14 fish. Concentrations in 6 fish were in the women and children "1 meal per week" range and 8 fish were in the "1 meal per month" range (Table 10; Figure 10). The median total PCB concentration in the 14 carp was 0.29 ppm. A total of 24 carp have been collected from the Rouge River downstream of Newburgh Lake since 1995, and the overall median total PCB concentration was 0.53 ppm.

A remediation project was conducted in Newburgh Lake and Evans Ditch (a tributary to the impoundment) in 1999 to remove sediments heavily contaminated with PCBs. The impoundment was drained and approximately 450,000 cubic yards of contaminated sediments were removed. Pre-project and post-project fish tissue data are available for carp from the river reach downstream of Newburgh Lake to the Ford dam in Dearborn. Comparisons indicate that PCB concentrations in carp declined significantly between 1995 and 2005, strongly suggesting that the remediation project had a positive impact.

Recommendations: The MDCH should consider removing the general population advisory on carp less than 30 inches from the Middle Branch of the Rouge River downstream of Newburgh Lake. In addition, the MDCH should consider relaxing the women and children advisory to no

more than 6 meals per year of carp less than 30 inches from the Middle Branch of the Rouge River downstream of Newburgh Lake.

No additional monitoring is necessary at this time.

Rouge River, Middle Branch, Newburgh Lake, Wayne County (ID 2005079)
Carp, Channel Catfish, Northern Pike, and White Sucker

Existing MDCH Advisory: Women and children should not eat more than 6 meals per year of carp of any size and no more than 1 meal per month of channel catfish due to elevated levels of PCBs. In addition, women and children should not eat more than 1 meal per month of northern pike and no more than 1 meal per week of white sucker due to elevated levels of PCBs.

Comparison to Trigger Levels: Ten carp ranging in length from 15 to 26 inches were collected from the Middle Branch of the Rouge River at Newburgh Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in all 10 fish. Concentrations in 2 fish were in the women and children "1 meal per week" range, 7 were in the "1 meal per month" range and 1 was in the women and children "6 meals per year" range (Table 10; Figure 11). The median total PCB concentration in the 10 fish was 0.25 ppm. A total of 30 carp have been collected since 2001. The median total PCB concentration in carp less than 18 inches was 0.09 ppm, and in fish greater than 18 inches the median concentration was 0.77 ppm.

Ten channel catfish ranging in length from 13 to 24 inches were collected from the Middle Branch of the Rouge River at Newburgh Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in all 10 fish. The concentration in 1 fish was in the women and children "1 meal per week" range and 9 fish had concentrations in the "1 meal per month" range (Table 10; Figure 12). The median total PCB concentration for all 10 fish was 0.35 ppm. A total of 29 channel catfish were collected from Newburgh Lake since 2001, and the overall median total PCB concentration was 0.32 ppm.

Seven northern pike ranging in length from 22 to 37 inches were collected from the Middle Branch of the Rouge River at Newburgh Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in all 7 fish (Table 10; Figure 13). Concentrations in 4 fish were in the women and children "1 meal per week" range and 3 were in the "1 meal per month" range. The median total PCB concentration for all 7 fish was 0.17 ppm. A total of 24 northern pike were collected since 1993 and the median total PCB concentration was 0.30 ppm.

The mercury concentration in 1 northern pike exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 14), and the median mercury concentration was 0.42 ppm. The overall median mercury concentration in the 24 northern pike collected from Newburgh Lake since 1993 was 0.30 ppm.

Ten white sucker ranging in length from 12 to 17 inches were collected from the Middle Branch of the Rouge River at Newburgh Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in all 10 fish (Table 10; Figure 15). Concentrations in 5 fish were in the "1 meal per week" range and 5 were in the "1 meal per month" range. The median total PCB concentration was 0.17 ppm. A total of 20 white sucker were collected from Newburg Lake since 2002. The median total PCB concentration in white sucker less than 14 inches was 0.08 ppm; the median concentration in fish greater than 14 inches was 0.25 ppm.

A remediation project was conducted in Newburgh Lake and Evans Ditch (a tributary to the impoundment) in 1999 to remove sediments heavily contaminated with PCBs. The

impoundment was drained and approximately 450,000 cubic yards of contaminated sediments were removed. Pre-project and post-project fish tissue data are available for northern pike and white sucker from Newburgh Lake. Comparisons indicate that PCB concentrations in those 2 species declined significantly between 1993 and 2005, strongly suggesting that the remediation project had a positive impact.

Recommendations: The MDCH should consider relaxing the women and children advisory on carp from the Rouge River at Newburgh Lake to no more than 1 meal per month of carp of any size.

In addition, the MDCH should consider advising women and children to eat no more than 1 meal per month of white sucker greater than 14 inches.

No additional monitoring is necessary at this time.

3.1.2.3 Lake Huron Watershed

Lake Huron, Saginaw Bay, Bay Port, Huron County (ID 2004046)
Walleye and Yellow Perch

Existing MDCH Advisory: The general population should eat no more than 1 meal per week of walleye greater than 22 inches due to elevated concentrations of mercury and PCBs. Also, women and children should eat no more than 1 meal per month of walleye greater than 22 inches and no more than 1 meal per week of walleye less than 22 inches. Also, women and children should eat no more than 1 meal per week of yellow perch due to elevated concentrations of PCBs.

Comparison to Trigger Levels: Ten walleye ranging in length from 16 to 23 inches, and 10 yellow perch ranging in length from 8 to 11 inches were collected from Saginaw Bay in 2004. Results of analysis for mercury, PCBs, and the standard chlorinated organic contaminants were presented in the 2005 Annual Report (Bohr and Zbytowski, 2006). Dioxin and furan analyses for both species were conducted in 2006 at the request of the MDCH.

Dioxin TEQ concentrations were below the MDCH trigger level in all 10 walleye and all 10 yellow perch collected in 2004 (Table 13).

Recommendations: No changes to the advisory or additional monitoring are necessary at this time.

Cass River, Above Caro, Tuscola County (ID 2005014)
Redhorse Sucker and Rock Bass

Existing MDCH Advisory: Redhorse sucker and rock bass from the Cass River upstream of Caro are not covered by an advisory.

Comparison to Trigger Levels: Ten redhorse sucker ranging in length from 15 to 23 inches were collected from the Cass River upstream of Caro in 2005. Mercury concentrations exceeded the MDCH “restrict consumption” trigger level in 2 fish, and the median concentration was 0.285 ppm (Table 11; Figure 16). Linear regression analysis indicates that redhorse sucker greater than 23 inches are likely to have mercury concentrations exceeding the “restrict consumption” trigger level.

Ten rock bass ranging in length from 6 to 8 inches were collected from the Cass River upstream of Caro in 2005. Mercury concentrations were below the MDCH "restrict consumption" trigger level in all rock bass (Table 11; Figure 17), and the median concentration was 0.12 ppm.

Recommendations: The MDCH should consider advising the general population to eat no more than 1 meal per week, and women and children no more than 1 meal per month of redhorse sucker greater than 22 inches due to elevated levels of mercury.

No additional monitoring is necessary at this time.

Fletcher Pond, Alpena County (ID 2005020)
Northern Pike

Existing MDCH Advisory: Northern pike from Fletcher Pond are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten northern pike ranging in length from 24 to 29 inches were collected from Fletcher Pond in 2005 and analyzed for mercury only. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 4 fish (Table 11; Figure 18), and the overall median concentration was 0.44 ppm.

Recommendations: No change to the advisory or additional monitoring is necessary at this time.

Nettie Lake, Presque Isle County (ID 2005114)
Smallmouth Bass

Existing MDCH Advisory: Nettie Lake smallmouth bass are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten smallmouth bass ranging in length from 13 to 17 inches were collected from Nettie Lake in 2005 and analyzed for mercury only. The mercury concentration in 1 fish exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 19), and the median concentration in the 7 legal size smallmouth bass was 0.33 ppm.

Recommendations: No change to the advisory is recommended. Additional smallmouth bass should be collected from Nettie Lake to evaluate the possibility of relaxing the advisory based on mercury.

Thompson Lake, Livingston County (ID 2005107)
Black Crappie, Carp, and Northern Pike

Existing MDCH Advisory: Women and children should not eat more than 1 meal per month of any size black crappie from Thompson Lake due to elevated levels of PCBs. In addition, Thompson Lake black crappie are covered by the statewide mercury advisory. No one should eat any Thompson Lake carp greater than 22 inches due to elevated levels of PCBs. The general population should not eat more than 1 meal per week, and women and children should not eat more than 6 meals per year of carp between 18 and 22 inches. Women and children should not eat more than 1 meal per week of carp less than 12 inches, and no more than 1 meal per month of carp between 12 and 18 inches. Lastly, Thompson Lake northern pike are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten black crappie ranging in length from 9 to 11 inches were collected from Thompson Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in all 10 fish. Concentrations in 4 fish were in the women and children "1 meal per week" range and 6 were in the women and children "1 meal per month" range (Table 10; Figure 20). The median total PCB concentration for all 10 fish was 0.26 ppm. A total of 17 black crappie were collected since 1995, and the overall median total PCB concentration was 0.30 ppm.

The mercury concentrations were below the trigger level in all 10 black crappie collected in 2005, and the median concentration was 0.30 ppm (Figure 21). The median mercury concentration in the 17 black crappie collected since 1995 was 0.29 ppm.

Ten carp ranging in length from 20 to 25 inches were collected from Thompson Lake in 2005. Total PCB concentrations exceeded the general population trigger level in 4 (40%) fish (Table 10; Figure 22). Concentrations exceeded women and children trigger levels in all 10 carp. Concentrations for 2 fish were in the "1 meal per month" range, 4 were in the women and children "6 meals per year" range, and 4 carp exceeded the women and children "no consumption" trigger level. The median total PCB concentration for all 10 carp was 1.76 ppm. A total of 17 carp were collected from Thompson Lake since 1995. Total PCB concentrations exceeded the general population trigger level in 5 of 13 (38%) fish between 18 and 26 inches. The median concentration in carp between 18 and 22 inches was 1.89 ppm.

The mercury concentration in 1 carp exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 23). The median mercury concentration was 0.14 ppm. The median concentration in the 17 carp collected since 1995 was 0.10 ppm.

Ten northern pike ranging in length from 25 to 34 inches were collected from Thompson Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in 9 fish. (Table 10; Figure 24). Concentrations in 3 fish were in the "1 meal per week" range, 5 northern pike were in the "1 meal per month range, and 1 was in the "6 meals per year" range. The median total PCB concentration for all 10 northern pike was 0.23 ppm.

Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in all 10 northern pike (Table 11; Figure 25), and the median mercury concentration was 0.86 ppm.

Recommendations: The MDCH should consider removing the general population advisory on Thompson Lake black crappie less than 12 inches. In addition, the MDCH should consider removing mercury from the list of contaminants causing the advisory on Thompson Lake black crappie.

Also, the MDCH should consider relaxing the general population advisory to no more than 1 meal per week of Thompson Lake carp between 18 and 26 inches.

Lastly, the MDCH should consider adding PCBs to the list of contaminants causing the consumption advisory on Thompson Lake northern pike.

No additional monitoring is necessary at this time.

3.1.2.4 Lake Michigan Watershed

Lake Michigan, Green Bay near Cedar River (ID 2004054 and ID 2005050)
Longnose Sucker, Smallmouth Bass, Walleye, and White Sucker

Existing MDCH Advisory: The general population should eat no more than 1 meal per week and women and children should not eat more than 6 meals per year of longnose sucker from

Green Bay due to elevated levels of PCBs. Women and children should not eat more than 1 meal per month of smallmouth bass of any size and the general population should not eat more than 1 meal per week of smallmouth bass greater than 18 inches due to elevated concentrations of mercury and PCBs. No one should eat Green Bay walleye greater than 26 inches due to elevated levels of mercury and PCBs. The general population should not eat more than 1 meal per week and women and children should not eat more than six meals per year of Green Bay walleye between 18 and 26 inches. In addition, women and children should not eat more than 1 meal per month of walleye less than 18 inches. Lastly, women and children should not eat more than 1 meal per month of white sucker of any size due to elevated levels of PCBs.

Comparison to Trigger Levels: Nine longnose sucker ranging in length from 15 to 20 inches were collected from Green Bay near the Cedar River in 2005. Total PCB concentrations exceeded women and children trigger levels in all 9 fish. The concentration in 1 fish was in the "1 meal per week" range, 7 were in the "1 meal per month" range, and 1 was in the "6 meals per year" range (Table 10; Figure 26). The median total PCB concentration in all 9 fish was 0.66 ppm. A total of 19 longnose sucker were collected from Green Bay since 1988. The overall median total PCB concentration in longnose sucker was 0.67 ppm.

Twelve smallmouth bass ranging in length from 14 to 20 inches were collected from Green Bay in 2004 and 2005. Total PCB concentrations were in the "1 meal per week" range for all 12 smallmouth bass (Table 10; Figure 27). The median total PCB concentration was 0.11 ppm. A total of 19 smallmouth bass were collected from Green Bay since 1992. The overall median total PCB concentration in smallmouth bass was 0.14 ppm.

Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 9 of the 12 smallmouth bass (Table 11; Figure 28) collected in 2004 and 2005. The median mercury concentration in smallmouth bass less than 18 inches was 0.51 ppm, and in fish greater than 18 inches the median concentration was 0.72 ppm. Thirteen smallmouth bass less than 18 inches collected in Green Bay since 1992 had an overall median mercury concentration of 0.44 ppm, while the 6 fish greater than 18 inches had an overall median mercury concentration of 0.69 ppm.

Seven walleye ranging in length from 16 to 30 inches were collected from Green Bay in 2005. Total PCB concentrations exceeded the general population trigger level in 1 of 5 (20%) fish greater than 22 inches (Table 10; Figure 29). Concentrations exceeded women and children trigger levels in all 7 walleye. The total PCB concentration in 1 fish was in the women and children "1 meal per week" range, 4 were in the "1 meal per month" range, 1 was in the "6 meals per year" range, and 1 exceeded the "no consumption" trigger level. The median total PCB concentration in the 2 walleye less than 22 inches was 0.19 ppm, and the median concentration in fish greater than 22 inches was 0.99 ppm. A total of 15 walleye were collected from Green Bay since 1992. The median total PCB concentration in walleye less than 22 inches was 0.26 ppm, and in fish greater than 22 inches the median was 0.99 ppm.

Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 5 of the 7 walleye collected in 2005 (Table 11; Figure 30). The median mercury concentration in the 2 walleye less than 22 inches was 0.24 ppm, and the median concentration in the fish greater than 22 inches was 0.9 ppm. The median mercury concentration in walleye less than 22 inches was 0.19 ppm, and in fish greater than 22 inches the median was 0.9 ppm.

Nine white sucker ranging in length from 16 to 20 inches were collected from Green Bay in 2004 and 2005. Total PCB concentrations exceeded women and children trigger levels in 8 fish. Concentrations were in the women and children "1 meal per week" range in 6 white sucker and 2 were in the "1 meal per month" range (Table 10; Figure 31). The median total PCB concentration was 0.13 ppm. A total of 19 white sucker were collected from Green Bay since 1988. The overall median total PCB concentration was 0.13 ppm.

Recommendations: The MDCH should consider removing the general population advisory on Green Bay longnose sucker less than 22 inches, and relaxing the women and children advisory to no more than 1 meal per month of Green Bay longnose sucker of any length.

In addition, the MDCH should consider relaxing the women and children advisory to no more than 1 meal per month of Green Bay walleye less than 22 inches, and relaxing the general advisory to no more than 1 meal per week of walleye between 22 and 30 inches.

Additional white sucker should be collected from Green Bay to evaluate the possibility of relaxing the advisory based on PCBs.

Aligan Lake (a.k.a. Unnamed Lake), Baraga County (ID 2005108)
Largemouth Bass, Northern Pike, and Yellow Perch

Existing MDCH Advisory: Aligan Lake is listed as Unnamed Lake in the current MDCH advisory. No one should eat any Aligan Lake northern pike due to elevated levels of mercury. Largemouth bass and yellow perch are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Eight largemouth bass ranging in length from 10 to 13 inches were collected from Aligan Lake in 2005 and analyzed for mercury only. All 8 fish were below the 14-inch legal size limit and 4 of the 8 fish had mercury concentrations exceeding the MDCH "restrict consumption" trigger level (Table 11; Figure 32).

Three northern pike ranging in length from 26 to 22 inches were collected from Aligan Lake in 2005 and analyzed for mercury only. The mercury concentration of all 3 northern pike exceeded the MDCH "restrict consumption" trigger level. The median mercury concentration was 0.989 ppm (Table 11; Figure 32).

Three yellow perch ranging in length from 7 to 10 inches were collected from Aligan Lake in 2005 and analyzed for mercury only. All 3 fish were below the MDCH "restrict consumption" trigger level (Figure 32).

Recommendations: No change to the advisory or further monitoring is recommended.

Antoine Lake, Dickinson County (ID 2005001)
Northern Pike and Walleye

Existing MDCH Advisory: Antoine Lake northern pike and walleye are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten northern pike ranging in length from 22 to 26 inches were collected from Antoine Lake in 2005 and analyzed for mercury only. The mercury concentration in 1 fish exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 33), and the median concentration in the 6 legal size northern pike was 0.38 ppm.

Seven walleye ranging in length from 14 to 22 inches were collected from Antoine Lake in 2005 and analyzed for mercury only. The mercury concentrations were below the MDCH "restrict consumption" trigger level in all of 7 fish (Figure 34). The median mercury concentration in the 5 legal size walleye was 0.24 ppm. A total of 13 walleye were collected from Antoine Lake since 1988. The median mercury concentration in the 10 fish of legal size was 0.22 ppm.

Recommendations: The MDCH should consider removing the advisory on Antoine Lake northern pike less than 26 inches. In addition, the MDCH should consider removing the advisory on Antoine Lake walleye less than 22 inches. No additional monitoring is necessary at this time.

Baldwin River, Lake County (ID 2005004)
Brown Trout

Existing MDCH Advisory: Baldwin River brown trout are not covered by an advisory; however, the river is a major tributary to the Pere Marquette River, which does have a consumption advisory. Women and children should eat no more than 1 meal per week of Pere Marquette brown trout less than 14 inches and no more than 1 meal per month of Pere Marquette brown trout greater than 14 inches due to elevated levels of mercury and PCBs, and the general population should eat no more than 1 meal per week of Pere Marquette brown trout greater than 14 inches due to elevated levels of mercury.

Comparison to Trigger Levels: Ten brown trout ranging in length from 10 to 16 inches were collected from the Baldwin River near M-37 in 2005. Total PCB concentrations exceeded women and children trigger levels in 6 fish. Concentrations in 4 fish were in the "1 meal per week" range and 2 were in the "1 meal per month" range (Table 10; Figure 35). The median total PCB concentration was 0.11 ppm. A total of 35 brown trout were collected from the Baldwin, Pere Marquette, and Little South Branch Pere Marquette Rivers near the city of Baldwin since 1994. The overall median total PCB concentration was 0.18 ppm.

Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 3 of the brown trout collected in 2005, and the median concentration was 0.16 ppm (Table 11; Figure 36). The median total mercury concentration in the brown trout less than 14 inches collected since 1994 was 0.14 ppm, and the median concentration in fish greater than 14 inches was 0.56 ppm.

Recommendations: The MDCH should consider expanding the fish consumption advisories for the Pere Marquette River to the entire watershed, including the Baldwin River. In addition, the MDCH should consider advising women and children to eat no more than 1 meal per month of Pere Marquette brown trout due to elevated levels of PCBs and mercury.

No additional monitoring is necessary at this time.

Craig Lake, Baraga County (ID 2005015)
Northern Pike and Walleye

Existing MDCH Advisory: Craig Lake northern pike and walleye are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Seven northern pike ranging in length from 18 to 39 inches were collected from Craig Lake in 2005 and analyzed for mercury only. The mercury concentrations

in 6 fish exceeded the MDCH "restrict consumption" trigger level, and 3 of those had concentrations that exceeded the "no consumption" trigger level (Table 11; Figure 37). A total of 11 northern pike were collected from Craig Lake since 1991. The median mercury concentration in the legal size northern pike less than 30 inches was 0.92 ppm, and the median concentration in northern pike greater than 30 inches was 1.67 ppm.

Seven walleye ranging in length from 14 to 18 inches were collected from Craig Lake in 2005 and analyzed for mercury only. The mercury concentrations in 6 fish exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 38). The median mercury concentration in the 6 legal size walleye was 0.75 ppm. A total of 22 walleye were collected from Craig Lake since 1989, and the median mercury concentration in the 14 legal size fish was 0.89 ppm.

Recommendations: The MDCH should consider advising the general population against eating any Craig Lake northern pike greater than 30 inches. No additional monitoring is necessary at this time.

Fawn River, Stubey Road, St. Joseph County (ID 2005019)
Carp and Smallmouth Bass

Existing MDCH Advisory: Women and children should eat no more than 1 meal per week of carp less than 22 inches from the Fawn River and no more than 1 meal per month of carp greater than 22 inches due to elevated levels of PCBs. Smallmouth bass are not covered by an advisory.

Comparison to Trigger Levels: Ten carp ranging in length from 19 to 26 inches were collected from the Fawn River at Stubey Road in 2005. Total PCB concentrations were below MDCH trigger levels in all 10 fish (Figure 39), and the overall median total PCB concentration was 0.13 ppm. A total of 18 carp were collected from the Fawn River since 1990. The median concentration of fish less than 22 inches was 0.025 ppm, and in carp greater than 22 inches the median concentration was 0.049 ppm.

Ten smallmouth bass ranging in length from 12 to 17 inches were collected in 2005. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 5 smallmouth bass (Table 10; Figure 40), and the median concentration was 0.47 ppm. Linear regression analysis indicates that smallmouth bass greater than 16 inches are likely to have mercury concentrations exceeding the "restrict consumption" trigger level.

Recommendations: The MDCH should consider removing the advisory on Fawn River carp less than 22 inches and relaxing the women and children advisory to no more than 1 meal per week of Fawn River carp greater than 22 inches.

In addition, the MDCH should consider advising the general public to eat no more than 1 meal per week and women and children no more than 1 meal per month of smallmouth bass from Fawn River due to elevated levels of mercury.

Fremont Lake, Newaygo County (ID 2005021)
Carp and Largemouth Bass

Existing MDCH Advisory: Fremont Lake largemouth bass are covered by the statewide mercury advisory. Carp are not covered by an advisory.

Comparison to Trigger Levels: Ten carp ranging in length from 20 to 29 inches were collected from Fremont Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in 7 fish. Six of the carp had total PCB concentrations in the women and children "1 meal per week" range, and 1 was in the women and children "1 meal per month" range (Table 10; Figure 41). The median total PCB concentration of the 10 carp was 0.090 ppm.

Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 3 of 10 carp collected in 2005 and the median mercury concentration was 0.305 ppm (Table 11; Figure 42). A total of 20 carp were collected from Fremont Lake since 1990 and analyzed for mercury. The median mercury concentration in carp less than 22 inches was 0.10 ppm, and the median concentration in carp greater than 22 inches was 0.33 ppm.

Ten largemouth bass ranging in length from 14 to 17 inches were collected from Fremont Lake in 2005. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 2 fish. The median mercury concentration in the 10 largemouth bass was 0.490 ppm (Table 11; Figure 43).

Recommendations: The MDCH should consider advising women and children to eat no more than 1 meal per week of carp from Fremont Lake due to elevated levels of PCBs.

No additional monitoring is necessary at this time.

Hanbury Lake, Dickinson County (ID 2005028)
Largemouth Bass

Existing MDCH Advisory: Hanbury Lake largemouth bass are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten largemouth bass ranging in length from 14 to 17 inches were collected from Hanbury Lake in 2005 and analyzed for mercury only. The mercury concentration in 9 fish exceeded the MDCH "restrict consumption" trigger level and the median mercury concentration was 0.972 ppm (Table 11; Figure 44).

Recommendations: No change to the advisory or additional monitoring is recommended.

Lake Macatawa, Ottawa County (ID 2005047)
Carp and Walleye

Existing MDCH Advisory: Women and children should not eat more than 1 meal per week of carp less than 14 inches, 1 meal per month of carp between 14 and 22 inches, and no carp greater than 22 inches from Lake Macatawa due to elevated concentrations of PCBs and chlordane. The general population should not eat any carp greater than 22 inches and no more than 1 meal per week of carp between 18 and 22 inches due to elevated concentrations of PCBs and chlordane. Women and children should not eat more than 1 meal per month of walleye greater than 14 inches due to elevated levels of PCBs.

Comparison to Trigger Levels: Eight carp ranging in length from 20 to 25 inches were collected from Lake Macatawa in 2005. Total PCB concentrations exceeded the general population trigger level in 2 (25%) carp, and concentrations exceeded women and children trigger levels in all 8 fish. The total PCB concentration in 1 fish was in the "1 meal per week" range, 3 were in the "1 meal per month" range, 2 were in the "6 meals per year" range, and 2 carp exceeded the "no consumption" trigger level (Table 10; Figure 45). The median total PCB concentration for all

8 carp was 0.82 ppm. A total of 18 carp were collected from Lake Macatawa since 1995. The median total PCB concentration in carp less than 22 inches was 0.96 ppm, the median concentration in fish between 22 and 26 inches was 1.36 ppm, and the median total PCB concentration in carp greater than 26 inches was 4.7 ppm.

The total chlordane concentrations were below the MDCH trigger level in all 8 carp collected in 2005 (Table 12; Figure 46). Three carp greater than 26 inches were collected from Lake Macatawa since 1987, and 2 (67%) had chlordane concentrations exceeding the trigger level.

Dioxin and furan congeners were analyzed in the 8 carp collected in 2005. Dioxin TEQ concentrations were below the MDCH trigger level in all 8 fish (Table 13; Figure 47).

Ten walleye ranging in length from 19 to 31 inches were collected from Lake Macatawa in 2005. Total PCB concentrations were below the general population trigger level and exceeded women and children trigger levels in all 10 fish. Concentrations in 8 fish were in the "1 meal per month" range, 1 was in the "6 meals per year" range, and 1 walleye exceeded the women and children "no consumption" trigger level (Table 10; Figure 48). The median total PCB concentration for all 10 walleye was 0.43 ppm. A total of 32 walleye were collected from Lake Macatawa since 1987. The median total PCB concentration in walleye less than 26 inches was 0.22 ppm and the median concentration in fish greater than 26 inches was 0.65 ppm.

Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 4 of the 10 walleye collected in 2005 (Table 11; Figure 49), and the median mercury concentration was 0.42 ppm. The median mercury concentration in the 27 walleye less than 26 inches collected since 1987 was 0.19 ppm, and the median concentration in the 5 fish greater than 26 inches was 0.65 ppm.

Recommendations: The MDCH should consider relaxing the general population advisory to no more than 1 meal per week of carp between 18 and 26 inches.

In addition, the MDCH should consider removing chlordane from the list of contaminants causing the consumption advisory on Lake Macatawa carp.

Also, the MDCH should consider advising the general population to eat no more than 1 meal per month of walleye greater than 26 inches due to elevated levels of mercury.

No additional monitoring is necessary at this time.

Pigeon River, 136th Avenue, Ottawa County (ID 2005129)
White Sucker

Existing MDCH Advisory: Pigeon River (Ottawa County) white sucker are not covered by an advisory.

Comparison to Trigger Levels: Ten white sucker ranging in length from 10 to 15 inches were collected from the Pigeon River in 2005 and analyzed for the standard suite of contaminants (Table 3). Contaminant concentrations were below MDCH trigger levels in all 10 fish.

Recommendations: No change to the advisory is necessary at this time.

Pigeon River, Vistula Road, St. Joseph County (ID 2005076)
Redhorse Sucker, Rock Bass, and Smallmouth Bass

Existing MDCH Advisory: Pigeon River (St. Joseph County) redhorse sucker, rock bass, and smallmouth bass are not covered by an advisory.

Comparison to Trigger Levels: Ten redhorse sucker ranging in length from 14 to 18 inches were collected from the Pigeon River in 2005. Total PCB concentrations exceeded women and children trigger levels in 8 fish. Concentrations for the 8 fish were in the "1 meal per week" range (Table 10; Figure 50) and the median total PCB concentration was 0.09 ppm.

Ten rock bass ranging in length from 7 to 9 inches were collected from the Pigeon River at Vistula Road in 2005. Contaminant concentrations were below the MDCH trigger levels in all 10 rock bass.

Ten smallmouth bass ranging in length from 12 to 18 inches were collected from the Pigeon River at Vistula Road in 2005. Total PCB concentrations exceeded women and children trigger levels in 4 fish. Concentrations for the 4 fish were in the "1 meal per week" range (Table 10; Figure 51). The median total PCB concentration for all 10 smallmouth bass was 0.04 ppm.

Mercury concentration exceeded the MDCH "restrict consumption" trigger level in 1 of the 10 smallmouth bass collected in 2005 (Table 11; Figure 52). The median mercury concentration in the 7 fish greater than the 14-inch legal size limit was 0.33 ppm.

Recommendations: The MDCH should consider advising women and children to eat no more than 1 meal per week of Pigeon River redhorse sucker due to elevated levels of PCBs.

In addition, the MDCH should consider advising women and children to eat no more than 1 meal per week of Pigeon River smallmouth bass less than 18 inches and no more than 1 meal per month of smallmouth bass greater than 18 inches due to elevated levels of PCBs and mercury. Also, the MDCH should consider advising the general population to eat no more than 1 meal per week of Pigeon River smallmouth bass greater than 18 inches due to elevated levels of mercury.

Platte Lake, Benzie County (ID 2004151 and ID 2005160)
Channel Catfish, Northern Pike, Rock Bass, Smallmouth Bass, and Walleye

Existing MDCH Advisory: Platte Lake northern pike, rock bass, smallmouth bass, and walleye are all covered by the statewide mercury advisory. Channel catfish are not covered by an advisory.

Comparison to Trigger Levels: Two channel catfish with lengths of 21 and 24 inches were collected from Platte Lake in 2004. Total PCB concentrations exceeded women and children trigger levels in both fish. Concentrations were in the "1 meal per month" range for both fish and the median total PCB concentration was 0.53 ppm (Table 10; Figure 53).

One 34-inch northern pike was collected from Platte Lake in 2004. The fish had a total PCB concentration in the women and children "1 meal per week" range with a concentration of 0.07 ppm (Table 10; Figure 53).

The mercury concentration in the northern pike exceeded the MDCH "restrict consumption" trigger level, having a concentration of 0.54 ppm (Table 11; Figure 54).

Five rock bass ranging in length from 8 to 9 inches were collected from Platte Lake in 2005. Contaminant concentrations were below the MDCH trigger levels for all 5 rock bass (Figures 53 and 54).

Two smallmouth bass with lengths of 16 and 17 inches were collected from Platte Lake in 2004. Total PCB concentrations in both fish were in the women and children "1 meal per week" range (Table 10; Figure 53), and the median total PCB concentration was 0.09 ppm.

Mercury concentration exceeded the MDCH "restrict consumption" trigger level in 1 smallmouth bass (Table 11; Figure 54), and the median mercury concentration was 0.48 ppm.

One 15-inch walleye was collected from Platte Lake in 2004. Contaminant concentrations were below the MDCH trigger levels for the walleye (Figures 53 and 54).

Recommendations: The MDCH should consider advising women and children to eat no more than 1 meal per month of Platte Lake channel catfish due to elevated levels of PCBs. In addition, the MDCH should consider adding PCBs to the list of contaminants causing advisories for Platte Lake largemouth bass, northern pike, and smallmouth bass.

The MDCH should also consider removing the advisory on Platte Lake rock bass less than 10 inches.

No additional monitoring is necessary at this time.

Round Lake, Marquette County (ID 2005081)
Largemouth Bass

Existing MDCH Advisory: Round Lake largemouth bass are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten largemouth bass ranging in length from 13 to 16 inches were collected from Round Lake in 2005 and analyzed for mercury only. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in all 10 largemouth bass (Table 11; Figure 55). The median mercury concentration in the 8 legal sized largemouth bass was 1.0 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

St. Joseph River, Chapin Lake, Berrien County (ID 2005098)
Carp, Largemouth Bass, and Smallmouth Bass

Existing MDCH Advisory: The general population should not eat more than 1 meal per week of any size carp and women and children should not eat carp of any size due to elevated levels of PCBs. Women and children should not eat more than 1 meal per month of smallmouth bass from Chapin Lake due to elevated levels of PCBs. Chapin Lake largemouth bass and smallmouth bass are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten carp ranging in length from 16 to 25 inches were collected from the St. Joseph River at Chapin Lake in 2005. Total PCB concentrations exceeded women

and children trigger levels in 8 fish. Concentrations in 6 fish were in the "1 meal per week" range, and 2 carp had concentrations in the "1 meal per month" range (Table 10; Figure 56). The median total PCB concentration for all 10 carp was 0.15 ppm. A total of 29 carp were collected since 1995, and the overall median total PCB concentration was 0.32 ppm.

Ten largemouth bass ranging in length from 13 to 18 inches were collected from the St. Joseph River at Chapin Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in 6 largemouth bass, and concentrations were in the "1 meal per week" range for the 6 fish (Table 10; Figure 57). The median total PCB concentration for the 6 legal size largemouth bass was 0.12 ppm.

Mercury concentrations for all 10 largemouth bass were below the "restrict consumption" trigger level (Figure 58), and the median concentration in the 6 legal size fish was 0.26 ppm.

Ten smallmouth bass ranging in length from 13 to 17 inches were collected from the St. Joseph River at Chapin Lake in 2005. Total PCB concentrations exceeded women and children trigger levels in all 10 fish. The concentrations of 7 fish were in the "1 meal per week" range and 3 smallmouth bass were in the "1 meal per month" range (Table 10; Figure 59). The median total PCB concentration in the 7 legal size fish was 0.20 ppm. A total of 24 smallmouth bass were collected since 1987, and the median total PCB concentration in the 11 legal size fish was 0.21 ppm.

Mercury concentrations were below the "restrict consumption" trigger level in all 10 smallmouth bass collected in 2005 (Figure 60), and the median concentration in the 7 legal size fish was 0.27 ppm. The median mercury concentration in the 11 legal size smallmouth bass collected since 1987 was 0.28 ppm.

Recommendations: The MDCH should consider removing the general population advisory and relaxing the women and children advisory to no more than 1 meal per month of Chapin Lake carp less than 30 inches.

The MDCH should consider removing the general population advisory and relaxing the women and children advisory to no more than 1 meal per week of Chapin Lake largemouth bass less than 18 inches. In addition, the MDCH should consider adding PCBs to the list of contaminants causing the advisory on Chapin Lake largemouth bass.

No additional monitoring is necessary at this time.

Thornapple River, Ada and Cascade Impoundments, Kent County (ID 2005130 and ID 2005131)
Carp and Smallmouth Bass

Existing MDCH Advisory: Smallmouth bass from the Thornapple River impoundments are covered by the statewide mercury advisory. Thornapple River carp are not covered by an advisory.

Comparison to Trigger Levels: Ten carp ranging in length from 20 to 29 inches were collected from the Ada Impoundment of the Thornapple River 2005. Total PCB concentrations exceeded women and children trigger levels in 4 fish (Table 10; Figure 61). The concentrations in 3 fish were in the "1 meal per week" range and 1 fish was in the "1 meal per month" range. The median total PCB concentration in carp less than 26 inches was 0.038 ppm.

Five smallmouth bass ranging in length from 13 to 16 inches were collected from the Ada Impoundment and 6 smallmouth bass ranging in length from 13 to 15 inches were collected from the Cascade Impoundment of the Thornapple River in 2005. Mercury concentrations in 5 of the 6 legal size smallmouth bass exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 62). The median mercury concentration in the legal size smallmouth bass was 0.53 ppm.

Recommendations: The MDCH should consider advising women and children to eat no more than 1 meal per month of carp greater than 26 inches, and no more than 1 meal per week of carp less than 26 inches from the Thornapple River due to elevated levels of PCBs.

Additional carp were collected from the Labarge Impoundment of the Thornapple River in 2006. Results of the analysis of those samples will be discussed in the 2007 Annual Report.

No additional monitoring is necessary at this time.

Tucker Lake, Leelanau County (ID 2005127)
Brown Bullhead

Existing MDCH Advisory: Tucker Lake brown bullhead are not covered by an advisory.

Comparison to Trigger Levels: Ten brown bullhead ranging in length from 9 to 11 inches were collected in 2005 from Tucker Lake and analyzed for bioaccumulative contaminants at the request of the U.S. National Park Service. Contaminant concentrations were below MDCH trigger levels in all 10 fish.

Recommendations: No change to the advisory or further monitoring is recommended.

3.1.2.5 Lake Superior Watershed

Carp Creek, Upstream of Deer Lake, Marquette County (ID 2005013)
Brook Trout, White Sucker

Existing MDCH Advisory: Brook trout are not covered by an advisory. No one should eat any other species from Carp Creek due to elevated concentrations of mercury.

Comparison to Trigger Levels: Ten brook trout ranging from 7 to 10 inches were collected from Carp Creek upstream of Deer Lake in 2005 and analyzed for mercury only. The mercury concentration in 1 fish exceeded the MDCH "restrict consumption" trigger level. The median mercury concentration was 0.29 ppm. Linear regression analysis indicates that brook trout greater than 10 inches are likely to have mercury concentrations exceeding the MDCH "restrict consumption" trigger level (Table 11; Figure 63).

Seven white sucker ranging in length from 7 to 16 inches were collected from Carp Creek in 2005 and analyzed for mercury only. The mercury concentration in 1 fish exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 64). The overall median mercury concentration in white sucker was 0.22 ppm, and the median concentration in fish less than 10 inches was 0.21 ppm.

Recommendations: The MDCH should consider advising women and children to eat no more than 1 meal per month and the general population to eat no more than 1 meal per week of

Carp Creek brook trout greater than 10 inches due to elevated levels of mercury. In addition, the MDCH should consider removing the advisory on white sucker less than 10 inches.

No additional monitoring is necessary at this time.

Dead River, Forestville Basin, Marquette County (ID 2005017)
Northern Pike and Walleye

Existing MDCH Advisory: Northern pike and walleye from the Dead River, Forestville Basin, are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Six northern pike ranging in length from 19 to 24 inches were collected from the Dead River, Forestville Basin in 2005 and analyzed for mercury only. Only 1 of the fish was of legal size, but the mercury concentrations in all 6 northern pike exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 65). The median mercury concentration for all 6 fish was 0.78 ppm.

Eight walleye ranging in length from 16 to 20 inches were collected from the Dead River, Forestville Basin in 2005 and analyzed for mercury only. Mercury concentrations in 7 walleye exceeded the MDCH "restrict consumption" trigger level, and the median mercury concentration was 0.58 ppm for all 8 walleye (Table 11; Figure 66). A total of 13 walleye were collected since 1996. The overall median mercury concentration was 0.58 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

Gratiot Lake, Keweenaw County (ID 2005025)
Northern Pike, Smallmouth Bass, and Walleye

Existing MDCH Advisory: Gratiot Lake northern pike, smallmouth bass, and walleye are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Four northern pike ranging in length from 23 to 29 inches were collected from Gratiot Lake in 2005 and analyzed for mercury only. Mercury concentrations were below the MDCH "restrict consumption" trigger level in all 4 northern pike (Table 11; Figure 67). The median concentration in the 3 legal size fish was 0.29 ppm.

Two smallmouth bass ranging in length from 14 to 16 inches were collected from Gratiot Lake in 2005 and analyzed for mercury only. Mercury concentrations were below the MDCH "restrict consumption" trigger level in both fish (Table 11; Figure 67). The median mercury concentration was 0.26 ppm.

Three walleye ranging in length from 13 to 23 inches were collected from Gratiot Lake in 2005 and analyzed for mercury only. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 1 fish (Table 11; Figure 67). The median mercury concentration for the 2 legal size walleye was 0.70 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

King Lake, Baraga County (ID 2005037)
Largemouth Bass

Existing MDCH Advisory: King Lake largemouth bass are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Eight largemouth bass ranging in length from 13 to 15 inches were collected from King Lake in 2005 and analyzed for mercury only. The mercury concentration in 6 fish exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 68). The median mercury concentration for the 4 legal size largemouth bass was 0.62 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

Lake Independence, Marquette County (ID 2005045)
Walleye

Existing MDCH Advisory: Lake Independence walleye are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten walleye ranging in length from 15 to 17 inches were collected from Lake Independence in 2005 and analyzed for mercury only. Mercury concentrations in 7 fish exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 69). The median mercury concentration for all 10 walleye was 0.52 ppm. A total of 25 walleye were collected from Lake Independence since 1989, and the overall median mercury concentration was 0.54 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

Little Oxbow Lake, Gogebic County (ID 2005056)
Largemouth Bass and Walleye

Existing MDCH Advisory: Little Oxbow Lake largemouth bass and walleye are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Seven largemouth bass ranging in length from 14 to 16 inches were collected from Little Oxbow Lake in 2005 and analyzed for mercury only. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 2 fish (Table 11; Figure 70), and the median concentration in the 4 legal size largemouth bass was 0.35 ppm.

Three walleye ranging from 15 to 16 inches were collected from Little Oxbow Lake in 2005 and analyzed for mercury only. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in all 3 fish (Table 11; Figure 70), and the median concentration was 0.83 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

Ormes Lake, Gogebic County (ID 2005071)
Largemouth Bass

Existing MDCH Advisory: Ormes Lake largemouth bass are covered by the statewide mercury advisory.

Comparison to Trigger Levels: Ten largemouth bass ranging in length from 10 to 16 inches were collected from Ormes Lake in 2005 and analyzed for mercury only. Mercury concentrations exceeded the MDCH "restrict consumption" trigger level in 8 fish (Table 11; Figure 71). The overall median mercury concentration was 0.78 ppm, and the mercury concentration in the 1 legal size fish was 1.17 ppm.

Recommendations: No change to the advisory or further monitoring is recommended.

Teal Lake, Marquette County (ID 2005106)
Walleye

Existing MDCH Advisory: The general population should not eat more than 1 meal per week and women and children should not eat more than one meal per month of Teal Lake walleye greater than 22 inches due to elevated levels of mercury.

Comparison to Trigger Levels: Ten walleye ranging in length from 15 to 26 inches were collected from Teal Lake in 2005 and analyzed for mercury only. Mercury concentrations in 2 walleye exceeded the MDCH "restrict consumption" trigger level (Table 11; Figure 72). The median mercury concentration was 0.24 ppm for all 10 walleye. A total of 18 walleye were collected since 2004. Linear regression analysis indicates that Teal Lake walleye greater than 20 inches are likely to exceed the "restrict consumption" trigger level.

Recommendations: The MDCH should consider advising the general population to eat no more than 1 meal per week and women and children to eat no more than one meal per month of Teal Lake walleye greater than 18 inches.

3.1.3 Summary of Recommendations

The MDCH should consider relaxing fish consumption advisories at 12 sites and adding or expanding advisories at 12 sites. Also, additional monitoring is recommended at 6 water bodies.

3.1.3.1 Summary of Recommendations for Relaxed Advisories

- The MDCH should consider removing the general population advisory on carp less than 26 inches and relaxing the women and children advisory to no more than 6 meals per year of carp less than 26 inches from the Lower Branch of the Rouge River or from the Main Branch of the Rouge River below the Ford Dam. In addition, the MDCH should consider removing the general population advisory on suckers less than 14 inches and relaxing the women and children advisory to no more than 6 meals per year of sucker less than 14 inches.

- The MDCH should consider removing the general population advisory on carp less than 30 inches from the Middle Branch of the Rouge River downstream of Newburgh Lake. In addition, the MDCH should consider relaxing the women and children advisory to no more than 6 meals per year of carp less than 30 inches from the Middle Branch of the Rouge River downstream of Newburgh Lake.

- The MDCH should consider relaxing the women and children advisory on carp from the Rouge River at Newburgh Lake to no more than 1 meal per month of carp of any size.

- The MDCH should consider removing the general population advisory on Thompson Lake black crappie less than 12 inches. In addition, the MDCH should consider removing mercury from the list of contaminants causing the advisory on Thompson Lake black crappie.

- The MDCH should consider relaxing the general population advisory to no more than 1 meal per week of Thompson Lake carp between 18 and 26 inches.

- The MDCH should consider removing the general population advisory on Green Bay longnose sucker less than 22 inches, and relaxing the women and children advisory to no more than 1 meal per month of Green Bay longnose sucker of any length. In addition, the MDCH should consider relaxing the women and children advisory to no more than 1 meal per month of Green Bay walleye less than 22 inches, and relaxing the general advisory to no more than 1 meal per week of walleye between 22 and 30 inches.

- The MDCH should consider removing the advisory on Antoine Lake northern pike less than 26 inches. In addition, the MDCH should consider removing the advisory on Antoine Lake walleye less than 22 inches.

- The MDCH should consider removing the advisory on Fawn River carp less than 22 inches and relaxing the women and children advisory to no more than 1 meal per week of Fawn River carp greater than 22 inches.

- The MDCH should consider relaxing the general population advisory to no more than 1 meal per week of carp between 18 and 26 inches. In addition, the MDCH should consider removing chlordane from the list of contaminants causing the consumption advisory on Lake Macatawa carp.

- The MDCH should consider removing the advisory on Platte Lake rock bass less than 10 inches.

- The MDCH should consider removing the general population advisory and relaxing the women and children advisory to no more than 1 meal per month of Chapin Lake (St. Joseph River) carp less than 30 inches.

- The MDCH should consider removing the general population advisory and relaxing the women and children advisory to no more than 1 meal per week of Chapin Lake (St. Joseph River) largemouth bass less than 18 inches.

- The MDCH should consider removing the advisory on Carp Creek white sucker less than 10 inches.

3.1.3.2 Summary of Recommendations for Expanded Advisories

- The MDCH should consider advising women and children to eat no more than 1 meal per month of white sucker greater than 14 inches from the Rouge River at Newburgh Lake.

- The MDCH should consider advising the general population to eat no more than 1 meal per week, and women and children no more than 1 meal per month of redhorse sucker greater than 22 inches from the Cass River, above Caro, due to elevated levels of mercury.

- The MDCH should consider adding PCBs to the list of contaminants causing the consumption advisory on Thompson Lake northern pike.

- The MDCH should consider expanding the advisories for Pere Marquette River to the entire watershed, including the Baldwin River. In addition, the MDCH should consider advising women and children to eat no more than 1 meal per month of Pere Marquette brown trout due to elevated levels of PCBs and mercury.

- The MDCH should consider advising the general population against eating any Craig Lake northern pike greater than 30 inches.

- The MDCH should consider advising the general public to eat no more than 1 meal per week and women and children no more than 1 meal per month of smallmouth bass from Fawn River due to elevated levels of mercury.

- The MDCH should consider advising women and children to eat no more than 1 meal per week of carp from Fremont Lake due to elevated levels of PCBs.

- The MDCH should consider advising the general population to eat no more than 1 meal per month of walleye greater than 26 inches from Lake Macatawa due to elevated levels of mercury.

- The MDCH should consider advising women and children to eat no more than 1 meal per week of Pigeon River redhorse sucker due to elevated levels of PCBs.

- The MDCH should consider advising women and children to eat no more than 1 meal per week of Pigeon River smallmouth bass less than 18 inches and no more than 1 meal per month of smallmouth bass greater than 18 inches due to elevated levels of PCBs and mercury. Also, the MDCH should consider advising the general population to eat no more than 1 meal per week of Pigeon River smallmouth bass greater than 18 inches due to elevated levels of mercury.

- The MDCH should consider advising women and children to eat no more than 1 meal per month of Platte Lake channel catfish due to elevated levels of PCBs. In addition, the MDCH should consider adding PCBs to the list of contaminants causing advisories for Platte Lake largemouth bass, northern pike, and smallmouth bass.

- The MDCH should consider adding PCBs to the list of contaminants causing the advisory on Chapin Lake (St. Joseph River) largemouth bass.

- The MDCH should consider advising women and children to eat no more than 1 meal per month of carp greater than 26 inches, and no more than 1 meal per week of carp less than 26 inches from the Thornapple River due to elevated levels of PCBs.

- The MDCH should consider advising women and children to eat no more than 1 meal per month and the general population to eat no more than 1 meal per week of Carp Creek brook trout greater than 10 inches due to elevated levels of mercury.

- The MDCH should consider advising the general population to eat no more than 1 meal per week and women and children to eat no more than one meal per month of Teal Lake walleye greater than 18 inches.

3.1.3.3 Summary of Recommendations for Additional Monitoring

- Additional carp should be collected from the Main Branch of the Rouge River downstream of Ford Dam to evaluate the possibility of relaxing the advisory on fish greater than 26 inches.

- Additional smallmouth bass should be collected from Nettie Lake to evaluate the possibility of relaxing the advisory based on mercury.

- Additional white sucker should be collected from Green Bay to evaluate the possibility of relaxing the advisory based on PCBs.

3.1.3.4 Summary of WQS Attainment Status

The MDEQ-WB is required by the federal Clean Water Act (CWA) to describe the water quality of all navigable waters of the state and to provide an analysis of the extent to which these waters support designated uses. Designated uses are set forth in Rule 100 (R323.1100) of the Part 4 rules, WQS, promulgated under Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Michigan Compiled Laws). States are required by the CWA to develop a list of water bodies that do not support designated uses or do not attain WQS, and therefore require the development of a Total Maximum Daily Load (TMDL). The MDEQ-WB compiles a biennial integrated report, which includes that list, in order to satisfy CWA requirements.

Water bodies are evaluated and placed into at least one reporting category for each of 10 designated uses. A water body is placed in Category 1 if all designated uses are supported and no use is threatened, and in Category 2 if some designated uses are supported. Category 3 indicates that there is not sufficient data to determine if the designated use is being supported. Category 4 includes water bodies that have a threatened or impaired designated use, but do not need a TMDL developed because either: (a) a TMDL has been approved or established by the USEPA; (b) an impairment caused by a pollutant is being addressed through other pollution control requirements; or (c) an impairment is not caused by a pollutant. Lastly, if a water body does not attain WQS and is in need of TMDL development, it is listed in Category 5.

The fish consumption designated use protects a water body's ability to provide a fishery for human consumption. Attainment status of the fish consumption designated use is determined for water bodies with site-specific data, water column concentrations of Bioaccumulative Chemicals of Concern (BCCs), and/or Fish Consumption Advisories issued by the MDCH. Details of the methods used to make attainment status determinations is subject to biennial review, and will be presented in the 2008 Sections 303(d), 305(b), and 314 Integrated Report (in preparation).

The sites assessed for this report represented 29 water bodies. Approximately one-half of those water bodies have fish tissue-based records in the MDEQ-WB database used to track attainment status of sampled sites (Table 14). The database will need to be modified by the addition of 15 new records with a proposed attainment category based on fish contaminants, and by updating the remaining 16 existing records. Proposed water body record modifications will be reviewed by MDEQ staff, the USEPA, and the public before being presented in the 2008 Integrated Report.

3.2 CAGED FISH BIOCONCENTRATION STUDIES

Caged fish bioconcentration monitoring was conducted at 16 locations in 5 watersheds in 2005. The raw data are presented in Appendix E. General highlights of the caged fish studies conducted in the Black Creek, Escanaba, Macatawa, Ottawa, and Saginaw watersheds include:

- Net uptake of mercury was measured at 4 of 16 locations. The highest net uptake was measured in fish from cages set in the Escanaba River.

- Net uptake of total lipid-normalized PCB was measured at 15 of 16 locations. The highest net uptake was measured in fish from a cage set at the mouth of the Ottawa River.

- Net uptake of total lipid-normalized DDT was measured at 15 of 16 locations. The highest net uptake was measured in fish from a cage set at the mouth of the Ottawa River.

- Net uptake of total lipid-normalized chlordane was measured at 11 of 16 locations. The highest net uptake was measured in fish from cages set in the Macatawa and Ottawa Rivers.

- Net uptake of lipid-normalized dioxin TEQ was measured at all 9 of the locations tested. The highest net uptake was measured in fish from cages set in the Saginaw River, where concentrations were equivalent at all sites.

- Net uptake of lipid-normalized heptachlor or heptachlor epoxide was measured only at the Ottawa River site.

- Net uptake of lipid-normalized hexachlorobenzene was measured at all sites in the Saginaw River, but was not measured at the Saginaw Bay site. Hexachlorobenzene was not quantified at any of the other sites sampled in 2005.

3.2.1 Black Creek Caged Fish Study

Cages were placed at 3 locations in Black Creek, a tributary of Mona Lake (Muskegon County) in 2005 (Figure 3). There are consumption advisories on Black Creek carp and white sucker due to elevated concentrations of PCBs, based on samples collected in 1987. The caged fish study was conducted to identify sources of PCBs and other BCCs.

Net uptake of lipid-normalized total PCB was measured at 2 of the 3 sites (Table 15; Figure 73). The maximum average net uptake of lipid-normalized PCB was 4.6 parts per billion (ppb) and was measured at the creek mouth near Mona Lake. The PCB concentration measured at the mouth was higher than at the upstream sites, but the difference was not statistically significant ($\alpha>0.05$). Net uptake of total PCB and lipid-normalized PCB was roughly equivalent to other Great Lake tributary mouths with low levels (Table 16; Figures 74 and 75). The data do not indicate a significant source of PCBs in Black Creek.

Net uptake of lipid-normalized total DDT was quantified at all 3 Black Creek sites (Table 15; Figure 73). The highest concentration of DDT was measured at the most upstream site, but the concentrations at all three sites were roughly equivalent. The concentrations observed in Black Creek samples were near the upper end of the range of concentrations measured in other Great Lakes tributaries (Table 16).

No net uptake of mercury was measured, and all other contaminants assayed had concentrations less than the quantification levels.

3.2.2 Escanaba River Caged Fish Study

Cages were placed at 2 sites in the Escanaba River in 2005 (Figure 4). The study was conducted as part of basin year monitoring, with sites upstream and downstream of major permitted dischargers.

Net uptake of total lipid-normalized PCB was quantified at both sites (Table 15; Figure 76). The concentration at the river mouth was higher than at the upstream site, and the difference was statistically significant ($\alpha<0.05$), indicating a PCB source upstream of the river mouth. Net uptake of total PCB and lipid-normalized PCB was roughly equivalent to other Great Lake tributary mouths with low levels (Table 16; Figures 74 and 75). No quantifiable uptake was measured at the river mouth in caged fish studies conducted in 1987 and 1993.

Net uptake of lipid-normalized total DDT was measured at both Escanaba River sites (Table 15; Figure 76). The concentration measured at the downstream site was higher than upstream, but the difference was not statistically significant ($\alpha>0.05$). The concentrations observed in samples from the mouth of the Escanaba River were similar to concentrations measured in other Great Lakes tributaries (Table 16).

Quantifiable uptake of lipid-normalized chlordane was measured only at the downstream site (Table 15; Figure 76), and the concentration was equivalent to those measured at most other Great Lakes tributaries (Table 16).

Mercury uptake was quantified at both sites. The concentrations were equivalent (Table 15; Figure 76) and similar to concentrations measured in other Great Lakes tributaries (Table 16).

Net uptake of total lipid-normalized dioxin TEQ was detected at both sites in the Escanaba River. The concentration measured at the river mouth was higher than that measured at the upstream site (Table 15; Figure 77), but the difference was not statistically significant ($\alpha>0.05$).

3.2.3 Macatawa River Caged Fish Study

Cages were placed at 2 sites in the Macatawa River and 1 site in Lake Macatawa in 2005 (Figure 5). Lake Macatawa is covered by a fish consumption advisory due to elevated concentrations of PCBs and chlordane in carp and PCBs in walleye. The caged fish study was conducted to identify sources of PCBs, chlordane, and other BCCs.

Net uptake of lipid-normalized total PCB was measured at all 3 sites (Table 15; Figure 78). The concentration of lipid-normalized PCB at the River Street site was significantly higher than at the other 2 sites ($\alpha<0.05$), indicating a possible source upstream of River Street. Concentrations were in the mid-range of measurements observed in other Great Lakes tributaries (Table 16).

Net uptake of lipid-normalized total chlordane was measured at all 3 sites (Table 15; Figure 78), and the concentrations at all 3 sites were equivalent. Lipid-normalized total chlordane concentrations at the Macatawa sites ranged from 3 to 7 ppb; these concentrations are at the upper end of the range measured in other Lake Michigan tributaries (Table16).

Net uptake of lipid-normalized total DDT was measured at 2 of 3 sites in the Macatawa River watershed (Table 15; Figure 78). Spatial patterns suggest that the Macatawa River downstream of 112th Street may be a source of DDT to Lake Macatawa. The lipid-normalized concentrations of total DDT measured in the Macatawa River watershed were at the upper end of the range of concentrations measured in other Lake Michigan tributaries, and in the middle of the range of concentrations measured at all Great Lakes tributaries sampled (Table 16).

No net uptake of mercury was measured at any of the Macatawa sites, and all other contaminants assayed had concentrations near or below quantification levels.

3.2.4 Ottawa River Caged Fish Study

The Ottawa River is under a no consumption fish advisory due to elevated levels of PCBs, and a caged fish study was conducted to identify sources of PCBs and other BCCs. Caged fish were deployed at 3 sites as part of the 2005 study, but sampling was successful only at the Ottawa River mouth (Figure 6). One unsuccessful site was on the Ottawa River upstream of the Michigan/Ohio state line, and the other was at the mouth of Indian Creek, a tributary to North Maumee Bay. The cages set at the latter two sites were vandalized and no samples were retrieved.

Net uptake of lipid-normalized total PCB was higher at the Ottawa River site than that measured in any other Great Lake tributary caged fish sample, with the exception of samples collected in the Kalamazoo River (Table 16). The samples indicate the Ottawa River may be a significant source of PCBs to Little Maumee Bay and Lake Erie.

Net uptake of lipid-normalized total DDT measured in the Ottawa River was equivalent to that measured in caged fish studies conducted in other Lake Erie tributaries, and at the upper end of the range of concentrations measured in tributaries of the other Great Lakes (Table 16).

Net uptake of lipid-normalized total chlordane measured in the Ottawa River was at the upper end of the range measured in other Great Lake tributaries (Table 16).

No quantifiable uptake of any other assayed contaminant was measured at the Ottawa River site.

3.2.5 Saginaw River Caged Fish Study

The lower Saginaw River has historically had sediments with high levels of PCB contamination. A remediation project was conducted in 2000 and 2001 during which over 342,000 cubic yards of contaminated sediments were removed from the river between Middle Ground Island and the river mouth. Several pre-remediation caged fish studies have been conducted on the Saginaw River, most recently in 1998 (Day, 1999). A caged fish study designed, in part, to evaluate the effectiveness of the remediation project was conducted in 2002 (Bohr and Day, 2004), but was inconclusive in regard to the impact of the project on river PCB concentrations.

The Saginaw River has a very low gradient, and the reach near the mouth is subject to flow reversals depending on wind and river discharge conditions (Holtschlag, 1981). It was hypothesized that the influence of Saginaw Bay may have affected the uptake of PCBs measured at the river mouth during the 2002 caged fish study. A more intensive study of the lower river was conducted in 2005, with a goal of improving PCB uptake characterization. Cages were placed at 6 sites in the Saginaw River and at 1 site near Gull Island in Saginaw Bay in 2005 (Figure 7).

Net uptake of lipid-normalized total PCB was measured at all 7 sites in the 2005 Saginaw River caged fish study (Table 15; Figure 79). The lipid-normalized total PCB concentrations measured at the 2 river sites nearest the mouth (Wilder Road and river mouth) were equivalent, averaged 79 ppb, and were significantly higher than concentrations at the upstream sites, with the exception of the Truman Parkway site ($\alpha<0.05$). The 4 upstream sites were equivalent to each other and had an overall average lipid-normalized total PCB concentration of 43 ppb.

Net uptake of lipid-normalized total PCB at the Gull Island site in Saginaw Bay was significantly less than net uptake at the 2 river sites nearest the mouth ($\alpha<0.05$), and equivalent to the net uptake at the 4 upstream sites. Low concentrations of total PCBs in Saginaw Bay are to be expected, since dissolved and particulate material will tend to be diluted in the open water. Verbrugge et al., (1995) studied dissolved PCB concentrations in the Saginaw River in 1991, and Anderson et al., (1999) conducted a study of PCB concentrations in the Great Lakes in 1993. A comparison of the results of those studies shows concentrations in outer Saginaw Bay in 1993 were at least 40 times lower than measured in the Saginaw River in 1991.

If the Wilder Road and river mouth sites were impacted by Saginaw Bay we would expect concentrations at those sites to be biased low; that is, if not for the influence of Saginaw Bay the concentrations near the mouth would probably be higher. Even so, the concentrations measured in fish from cages deployed at or near the mouth were significantly higher than elsewhere. The data suggest that there continues to be a PCB source downstream of Middle Ground Island, and more specifically, downstream of the Detroit and Mackinac railroad bridge (Figure 79).

The net uptake of lipid-normalized PCBs measured in caged fish from the mouth of the Saginaw River in 2005 was not statistically different than that measured in 1998 or 2002 (Figure 79). Total PCB concentrations in the water near the mouth of the Saginaw River, as measured using caged fish, have not changed over time.

Net uptake of lipid-normalized PCBs was measured upstream of Middle Ground Island in 1998, 2002, and 2005 (Figure 79). Concentrations have fluctuated over time, with the highest concentrations measured in 2005.

Caged fish studies can be affected by variations in cage placement, river discharge, nutrient loads, and potentially many other factors. Because of this, such studies are a crude tool for measuring annual variation. However, concentrations measured at or near the mouth have been consistently higher than concentrations measured upstream, suggesting again, that a PCB source exists downstream of Middle Ground Island.

A staff report with a more detailed discussion of the results of the PCB analyses of the Saginaw River caged fish samples is in preparation.

Net uptake of lipid-normalized total dioxin TEQ was measured at all 7 sites in 2005 TEQ (Table 15; Figure 80). No spatial trend was observed. The overall average total dioxin concentration measured in the Saginaw River caged fish was over 4 times higher than that observed in caged fish at the Escanaba River mouth.

Net uptake of lipid-normalized total DDT was measured at all 7 sites in 2005 (Table 15; Figure 81). No spatial trend was apparent and the maximum observed concentration was at the upper end of the range of concentrations measured in other tributaries of the Great Lakes (Table 16).

Net uptake of lipid-normalized total chlordane was measured at all of the Saginaw River sites but not at the site in Saginaw Bay (Table 15; Figure 81). The concentrations measured in the Saginaw River were at the upper end of the range of concentrations measured in other tributaries of the Great Lakes (Table 16).

No quantifiable uptake of any other assayed contaminant was measured in the Saginaw River or Saginaw Bay in 2005.

3.3 TREND MONITORING

Several agencies in the Great Lakes basin are monitoring fish contaminant trends. Michigan's fish contaminant trend monitoring effort was initiated in 1990 to identify temporal trends and spatial differences in contaminant levels in whole fish from the Great Lakes and connecting channels, inland lakes, and rivers. Also, the USEPA collects and analyzes whole lake trout or walleye from the open waters of each of the Great Lakes. Finally, the Great Lakes states and the USEPA work cooperatively to collect and analyze coho and chinook salmon from select Great Lakes tributaries during the fall spawning migration. The coho and chinook salmon are analyzed as composites of skin-on fillets.

Highlights of the 3 trend monitoring programs are presented below:

3.3.1 USEPA-Great Lakes Whole Fish Trend Monitoring

The USEPA-Great Lakes National Program Office collects and analyzes whole lake trout or walleye from the Great Lakes. Samples continue to be collected and contaminant data have been released as they become available. Contaminant data are now available for whole lake trout from Lakes Michigan (1970-2000), Superior (1977-2000), Huron (1978-2000), and Ontario (1986-2000) (DeVault et al., 1996; USEPA unpublished data). Also, contaminant concentrations in whole Lake Erie walleye are available from samples collected between 1986 and 2000 (DeVault et al., 1996; USEPA unpublished data).

General conclusions are presented below:

- The USEPA's lake trout data for Lakes Superior, Michigan, Huron, and Ontario indicate that total PCB and total DDT concentrations in all four lakes declined between the 1970s and 2000 (Figures 82 and 83). Also, Lake Michigan lake trout had higher levels of total PCBs and total DDT than lake trout from the other Great Lakes.

- Total PCB and total DDT concentrations in Lake Superior lake trout showed no consistent trend between the late 1980s and 2000. Total PCB and total DDT concentrations in lake trout from Lakes Huron, Michigan, and Ontario continued to decline between 1986 and 2000, but at a slower rate than the declines observed between 1974 and 1986.

- Total chlordane concentrations declined at a fairly steady rate in lake trout from Lakes Huron and Ontario between 1986 and 2000 (Figure 84). Total chlordane levels in Lake Superior lake trout remained fairly constant from 1986 to 1995, but increased between 1997 and 2000. Lake trout from Lake Michigan exhibited a slow decline in total chlordane concentrations from 1986 to 2000.

- Apparent toxaphene concentrations declined between 1986 and 1998 in lake trout from each of the 4 Great Lakes monitored (Figure 85). The increases seen in the 2000 samples

are due, at least in part, to a change in lab reporting methods (D. Swackhamer, personal communication).

- Contaminant concentrations in Lake Superior lake trout were lower than concentrations in lake trout from the other Great Lakes with the exception of apparent toxaphene. The relatively high apparent toxaphene concentrations in Lake Superior lake trout compared to Lake Ontario lake trout may be a result of local sources or variability in lake overflow rates, productivity, climate, and the relative efficiencies of internal removal processes (Eisenreich, 1996).

- Average total DDT and total PCB concentrations in Lake Erie walleye declined since 1977 while no trend in total chlordane concentrations is apparent between 1986 and 2000 (Figure 86).

3.3.2 Federal-State Chinook and Coho Salmon Fillet Trend Monitoring

Chinook and coho salmon fillets were collected and analyzed as part of a cooperative program administered by state and federal agencies. Samples were collected by state agencies and analyzed by federal contract laboratories. Although samples continue to be collected, recent results were not available for inclusion in this report.

The average total PCB, total DDT, and total chlordane concentrations in coho and chinook salmon fillet samples collected in Michigan's portion of Lake Michigan between 1983 and 1998 are presented in Figure 87. Average total chlordane, total PCB, and total DDT concentrations increased in Lake Michigan coho salmon until the mid-1990s and then began to decrease. Average total DDT, total PCB, and total chlordane concentrations decreased in Lake Michigan chinook salmon between 1983 and 1997.

The average total PCB, total DDT, and total chlordane concentrations in coho and chinook salmon fillet samples collected in Michigan's portion of Lake Huron between 1983 and 1998 are presented in Figure 88. Average total PCB and total DDT concentrations decreased in both coho and chinook salmon between 1983 and 1998. Also, total chlordane concentrations decreased in Lake Huron chinook salmon between 1991 and 1998.

However, contaminant concentrations in chinook and coho salmon collected during spawning runs vary with fish length, and conclusions regarding changes in average contaminant concentrations may be influenced by changes in the size of the fish over time. The salmon collected in the late 1990s were smaller than salmon collected during the 1980s and early 1990s (Day and Walsh, 2000).

3.3.3 Michigan's Whole Fish Trend Monitoring

Trends analyses were conducted on a total of 32 data sets collected as part of Michigan's whole fish trend monitoring program. These data sets included species and sites for which data were available from a minimum of three sampling events (Table 2). These include carp from 5 inland rivers; lake trout, walleye, or largemouth bass from 8 inland lakes; and 19 carp, walleye, or lake trout data sets from 10 Great Lake or connecting channel stations. A significant increase or decrease in at least one selected contaminant was detected in all 32 data sets.

Often strong relationships exist between lipids and organic contaminant concentrations and length and contaminant concentrations. Therefore, multiple linear regression analyses were used to evaluate relationships between the natural log of contaminant concentrations and these

potential explanatory variables. Natural log transformed contaminant concentrations (wet weight) were used to fit the data into exponential decay rate models and obtain estimates of annual rates of change. The trend model for each subset of data was developed using an iterative process. The initial multiple linear regression model included length and collection date as explanatory variables for mercury concentrations. The model for organic contaminant concentrations used length, lipids, and collection date as explanatory variables. A final multiple linear regression model was developed for each subset by successively eliminating variables that did not have a statistically significant relationship ($p<0.05$) to contaminant concentration.

Minimum detectable trends were calculated in cases where the regression model failed to detect a significant trend in contaminant concentrations. The statistical significance of slope (or trend) in a linear regression model is calculated using a t-test. The minimum detectable trend can be calculated by rearranging the t-test, establishing a desired significance level ($p=0.05$), and obtaining the standard error of the slope from the regression analyses (Exponent, 2003). The minimum detectable trend is the smallest possible trend that could have been detected with the available data for each contaminant, species, and site. For example, a minimum detectable trend of +/-1.8% per year in Houghton Lake largemouth bass mercury concentrations (Table 17) indicates that no mercury trend was detected and the data were sufficient to detect a trend with an absolute value greater than 1.8% per year. Therefore, the absolute value of the real trend (if any) was 1.8% per year or less.

Statistically significant changes in mercury concentrations were detected in 14 of 32 data sets (Table 17; Figure 89). Concentrations are increasing in at least 1 species of fish at 7 of the 8 Great Lakes or connecting channel trend sites where a trend can be detected. The average and median rates of change in these 8 data sets were +3.9% per year and +5.2% per year, respectively. Mercury concentrations declined in fish from 3 of 6 inland lakes or rivers where trends could be detected, and increased in fish from the other 3 sites. The average and median rates of change in fish from the 6 inland lakes or rivers was 0.1% per year and -0.05% per year, respectively. Minimum detectable trends from all inland lake, river, Great Lakes, and connecting channel data sets ranged from +/-1.4% per year to +/-4.8% per year with a median minimum detectable trend of +/-2.2% per year.

Statistically significant changes in total PCB concentrations were detected in 27 of 32 data sets (Table 17; Figure 90). Total PCB concentrations decreased in 26 of the 27 data sets where changes were statistically significant. The one exception was lake trout from Grand Sable Lake where a 9.1% increase in total PCB concentrations was observed between 1991 and 1995. No samples have been collected from that lake since 1995. Where trends in total PCB concentrations could be detected, concentrations tended to decrease faster in fish from rivers and inland lakes compared to fish from the Great Lakes and connecting channels. Total PCB concentrations declined in fish from 11 of 12 rivers and inland lakes. The average and median rates of change in fish from all 12 sites were -7.2% per year and -6.8% per year, respectively. Concentrations declined in at least 1 species from all 10 sites in the Great Lakes or connecting channels. The average and median rates of change in these data sets were -6.9% per year and -6.3% per year, respectively. Minimum detectable PCB trends from all inland lake, river, Great Lakes, and connecting channel data sets ranged from +/-3.4% per year to +/-8.0% per year with a median minimum detectable trend of +/-4.5% per year.

Changes in total DDT concentrations were detected in 28 of 32 data sets (Table 17; Figure 91). Total DDT concentrations decreased in all 28 data sets where changes were statistically significant. Where trends could be detected, concentrations tended to decrease slightly faster in fish from the Great Lakes and connecting channels compared to fish from rivers and inland lakes. Concentrations declined in fish from all 11 rivers and inland lakes where a trend was

detected, and the average and median rates of change in fish from those 11 sites were -8.1% per year and -8.5% per year, respectively. Concentrations decreased in all of the Great Lakes and connecting channel data sets where a trend could be detected. The average and median rates of change in fish from these sites were -8.3% per year and -9.1% per year, respectively. Minimum detectable trends from all inland lake, river, Great Lakes, and connecting channel data sets ranged from +/-4.0% per year to +/-4.4% per year with a median minimum detectable trend of +/-4.3% per year.

Changes in total chlordane concentrations were observed in 29 of 30 data sets (Table 17; Figure 92). Concentrations were consistently near or below the quantification level in walleye from Lake Gogebic and South Manistique Lake, and trend analysis was not appropriate or necessary for those data sets. Total chlordane concentrations decreased in all 29 data sets where changes were statistically significant. Where trends could be detected, concentrations tended to decrease slightly faster in fish from the Great Lakes and connecting channels compared to fish from inland lakes and rivers. Total chlordane concentrations declined in fish from all 11 rivers and inland lakes where analysis was appropriate. The average and median rates of change in fish from these 11 sites were -8.3% per year and -8.6% per year, respectively. Concentrations of total chlordane changed in 18 data sets collected from 10 locations in the Great Lakes and connecting channels. The average and median rates of change in fish from these sites were -10.3% per year and -10.1% per year, respectively. Only 1 data set (Detroit River carp) has not yet shown a significant trend in total chlordane concentrations, and has a minimum detectable trend of +/-3.6%.

Changes in dioxin TEQ concentrations were measured in fish from 3 of 4 sites (Table 17; Figure 93). Concentrations declined in lake trout from both Thunder Bay and Keweenaw Bay, and in carp from Saginaw Bay. The rate of decrease was similar for all 3 data sets, and averaged 5.0% annually. The minimum detectable trend for Grand Traverse Bay lake trout is +/-13.0% per year.

The minimum detectable trends in all data sets ranged from +/-1.4% per year to +/-13.0% per year. Nearly 90% of the minimum detectable trends were less than +/-5% per year (Table 17). Michigan's whole fish contaminant trend monitoring program was sufficient to either detect statistically significant trends or estimate minimum detectable trends of less than +/-5% per year in 98% of the trends analyses conducted. The program was sufficient to either detect statistically significant trends or estimate minimum detectable trends of less than +/-10% per year in 99% of the trends analyses conducted.

In addition, the following general observations can be made:

- Lindane, terphenyl, PBB, heptachlor, and aldrin were not quantified in any of the fish sampled. However, heptachlor epoxide, and dieldrin (breakdown products of heptachlor and aldrin) were quantified in most of the samples analyzed.

- In addition to heptachlor epoxide and dieldrin, several chemicals were quantified in fish consistently, indicating that they are ubiquitous in the aquatic environment. These include mercury, hexachlorobenzene, total PCB, total chlordane, and total DDT.

- Apparent toxaphene was found primarily in walleye and lake trout from the Great Lakes and connecting channels. However, lake trout collected from Higgins Lake in 1991 (Site 91001) had quantifiable levels of apparent toxaphene while samples collected in 1995, 1998, and 2001 had concentrations below the quantification level. The highest concentrations of apparent toxaphene were quantified in lake trout from Lake Superior. The relatively high

concentration in Lake Superior lake trout is consistent with the results reported by DeVault (1996) and discussed in Section 3.3.1.

- Largemouth bass and walleye from inland lakes tended to have the highest concentration of mercury. Fish from inland lakes tended to have higher concentrations of mercury than the same species from the Great Lakes or connecting channels.

- All species from the Great Lakes and connecting channels tended to have higher concentrations of chlorinated organic contaminants than the same species from inland lakes.

- Average total PCB concentrations were highest in carp from the Kalamazoo River site. The Kalamazoo River has extensive areas of PCB contaminated sediments, a problem that is being addressed under state and federal programs.

- Carp from the St. Marys River had lower concentrations of organic contaminants than carp from the St. Clair River, Lake St. Clair and the Detroit River. Carp and walleye from the St. Marys River had higher concentrations of mercury than carp and walleye from the St. Clair River, Lake St. Clair and the Detroit River.

3.4 SPECIAL STUDIES

Samples of rainbow smelt and 9-spine sticklebacks were collected from Thunder Bay, Lake Huron, in 2005 to support food chain/contaminant modeling efforts by MDNR-Fisheries Division and the Institute for Fisheries Research. Three composite samples of whole fish of each species were analyzed by the MDCH-HRAL for mercury and chlorinated organic compounds (Table 3). Results are included in Appendix E (ID 2005161, available upon request).

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SECTION 4.0

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Table 1. Standard edible portions of Michigan's sport and commercial fishes.

Standard Edible Portion	Common Name	Scientific Name
Skin-on Fillet	Yellow Perch	*Perca flavenscens*
	Walleye	*Sander vitreum*
	Sauger	*Sander canadense*
	Largemouth Bass	*Micropterus salmonids*
	Smallmouth Bass	*Micropterus dolomieui*
	Bluegill	*Lepomis macrochirus*
	Pumpkinseed	*Lepomis gibbosus*
	Rock Bass	*Ambloplites rupestris*
	White Bass	*Morone chrysops*
	Black Crappie	*Pomoxis nigromaculatus*
	White Crappie	*Pomoxis annularis*
	Green Sunfish	*Lepomis cyanellus*
	Longear Sunfish	*Lepomis megalotis*
	Warmouth	*Lepomis gulosus*
	White Sucker	*Catastomus commersonii*
	Redhorse Sucker	*Moxostoma* spp.
	Lake Whitefish	*Coregonus clupeaformis*
	Lake Trout (lean & ciscowet)	*Salvelinus namaycush*
	Rainbow Trout (Steelhead)	*Oncorhynchus mykiss*
	Brown Trout	*Salmo trutta*
	Brook Trout	*Salvelinus fontinalis*
	Splake	*Salvelinus fontinalis* X *Salvelinus namaycush*
	Atlantic Salmon	*Salmo salar*
	Coho Salmon	*Oncorhynchus kisutch*
	Chinook Salmon	*Oncorhynchus tschawytscha*
	Pink Salmon	*Oncorhynchus gorbuscha*
Skin-off Fillet	Black Bullhead	*Ameiurus melas*
	Brown Bullhead	*Ameiurus nebulosus*
	Yellow Bullhead	*Ameiurus natalis*
	Channel Catfish	*Ictalurus punctatus*
	Muskellunge	*Esox masquinongy*
	Northern Pike	*Esox lucius*
	Round Whitefish (Menominee)	*Prosopium cylindraceum*
	Lake Herring	*Coregonus artedii*
	Chubs	*Coregonus sp*
	Carp	*Cyprinus carpio*
	Freshwater Drum (Sheepshead)	*Aplodinotus grunniens*
	Buffalo	*Ictiobus cyprinellus*
	Burbot	*Lota lota*
	Quillback	*Carpiodes cyprinus*
Skin-off Steak	Sturgeon	*Acipenser fulvescens*
Headless, Gutted	Rainbow Smelt	*Osmerus mordax*

Table 2. Whole fish trend monitoring locations, target species, and years monitored.

WATER BODY	SPECIES COLLECTED*	YEARS MONITORED
GREAT LAKES AND CONNECTING CHANNELS		
Lake Michigan		
Little Bay de Noc	Carp	1992, 94, 00, 03, 05
	Walleye	1992, 94, 97, 00, 02, 05
Grand Traverse Bay	Carp	1993, 95, 00, 03
	Lake Trout (D)	1990, 92, 95, 98, 01, 04
Lake Huron		
Saginaw Bay	Carp (D)	1990, 92, 94, 98, 01, 03, 05
	Walleye	1990, 91, 92, 94, 98, 03, 05
Thunder Bay	Carp	1992, 94, 95, 99, 01, 04
	Lake Trout (D)	1992, 94, 95, 98, 01, 04, 05
	Walleye	1991, 95, 98, 01, 05
Lake Superior		
Keweenaw Bay	Lake Trout (D)	1991, 93, 96, 99, 01, 04
Lake St. Clair		
L'Anse Creuse Bay	Carp	1990, 92, 94, 98, 02, 05
	Walleye	1990, 92, 94, 98, 02, 05
Lake Erie		
Brest Bay	Carp	1990, 92, 94, 97, 98, 02
	Walleye	1990, 92, 94, 98, 04
St. Marys River		
Munuscong Bay	Carp	1993, 95, 98, 04
	Walleye	1991, 93, 95, 98, 01, 05
St. Clair River		
Algonac	Carp	1992, 94, 02, 05
	Walleye	1992
Detroit River		
Grassy Island	Carp	1990, 92, 94, 96, 98, 01, 04
	Walleye	1990, 94, 96, 98, 01, 04, 05
RIVERS		
Grand River	Carp	1990, 92, 95, 00, 03, 05
Kalamazoo River	Carp	1990, 92, 94, 97, 99, 01, 03, 05
Manistee River	Carp	1992, 94
Manistique River	Redhorse Sucker	1993, 03
Menominee River	Carp (D)	1991
	Redhorse Sucker	1994
Muskegon River	Carp	1991, 93, 95, 97, 00, 02, 05
River Raisin	Carp	1991, 94, 97, 00, 04
St. Joseph River	Carp	1991, 93, 97, 00, 02, 05
INLAND LAKES		
Grand Sable Lake	Lake Trout	1991, 93, 95
Lake Gogebic	Walleye	1992, 94, 97, 00, 02, 05
South Manistique Lake	Walleye	1991, 93, 95, 98, 01, 03, 05
Higgins Lake	Lake Trout	1991, 95, 97, 00, 02
Houghton Lake	Largemouth Bass	1992, 94, 98, 01, 04
Gull Lake	Largemouth Bass	1991, 93, 95, 97, 00, 02, 05
Gun Lake	Largemouth Bass	1990, 92, 94, 97, 00, 02, 05
Pontiac Lake	Largemouth Bass	1992, 94, 97, 99, 03

*D = dioxin and furan congeners.

Table 3. Halogenated organic chemicals and mercury quantified in edible portion and whole fish tissue samples.

Standard Analyses	Level of Quantification
Hexachlorobenzene	0.001 ppm
gamma-BHC (Lindane)	0.001 ppm
Aldrin	0.001 ppm
Dieldrin	0.001 ppm
4,4'-DDE	0.001 ppm
4,4'-DDD	0.001 ppm
4,4'-DDT	0.001 ppm
2,4'-DDE	0.001 ppm
2,4'-DDD	0.001 ppm
2,4'-DDT	0.001 ppm
Heptachlor Epoxide	0.001 ppm
Mercury	0.010 ppm
Oxychlordane	0.001 ppm
gamma-Chlordane	0.001 ppm
trans-Nonachlor	0.001 ppm
alpha-Chlordane	0.001 ppm
cis-Nonachlor	0.001 ppm
Octachlorostyrene	0.001 ppm
Hexachlorostyrene	0.001 ppm
Heptachlorostyrene	0.001 ppm
Pentachlorostyrene	0.001 ppm
Heptachlor	0.001 ppm
Terphenyl	0.250 ppm
Toxaphene	0.050 ppm
Mirex	0.001 ppm
PBB (FF-1, BP-6)	0.001 ppm

Table 4. PCB structure and corresponding identification number of congeners quantified in fish tissue samples.

BZ#	Structure
	TRICHLOROBIPHENYLS
17	2,2',4
18	2,2',5
22	2,3,4'
25	2,3',4
26	2,3',5
28	2,4,4'
31	2,4',5
32	2,4',6
33	2',3,4
37	3,4,4'
	TETRACHLOROBIPHENYLS
40	2,2',3,3'
42	2,2',3,4'
44	2,2',3,5'
45	2,2',3,6
47	2,2',4,4'
49	2,2',4,5'
52	2,2',5,5'
56	2,3,3',4'
60	2,3,4,4'
63	2,3',4',5
64	2,3,4',6
66	2,3',4,4'
70	2,3',4',5
71	2,3',4',6
74	2,4,4',5
77	3,3',4,4'
	PENTACHLOROBIPHENYLS
82	2,2',3,3',4
84	2,2',3,3',6
87	2,2',3,4,5'
90	2,2',3,4',5
91	2,2',3,4',6
92	2,2',3,5,5'
95	2,2',3,5',6
97	2,2',3',4,5
99	2,2',4,4',5
100	2,2',4,4',6
101	2,2',4,5,5'
105	2,3,3',4,4'
110	2,3,3',4',6
118	2,3',4,4',5
126	3,3',4,4',5

BZ#	Structure
	HEXACHLOROBIPHENYLS
128	2,2',3,3',4,4'
130	2,2',3,3',4,5'
132	2,2',3,3',4,6'
135	2,2',3,3',5,6'
136	2,2',3,3',6,6'
137	2,2',3,4,4',5
138	2,2',3,4,4',5'
141	2,2',3,4,5,5'
144	2,2',3,4,5',6
146	2,2',3,4',5,5'
149	2,2',3,4',5',6
151	2,2',3,5,5',6
153	2,2',4,4',5,5'
156	2,3,3',4,4',5
157	2,3,3',4,4',5'
158	2,3,3',4,4',6
163	2,3,3',4',5,6
167	2,3',4,4',5,5'
	HEPTACHLOROBIPHENYLS
170	2,2',3,3',4,4',5
171	2,2',3,3',4,4',6
172	2,2',3,3',4,5,5'
174	2,2',3,3',4,5,6'
175	2,2',3,3',4,5',6
177	2,2',3,3',4',5,6
178	2,2',3,3',5,5',6
179	2,2',3,3',5,6,6'
180	2,2',3,4,4',5,5'
182	2,2',3,4,4',5,6'
183	2,2',3,4,4',5',6
185	2,2',3,4,5,5',6
187	2,2',3,4',5,5',6
190	2,3,3',4,4',5,6
193	2,3,3',4',5,5',6
	OCTACHLOROBIPHENYLS
194	2,2',3,3',4,4',5,5'
195	2,2',3,3',4,4',5,6
196	2,2',3,3',4,4',5,6'
198	2,2',3,3',4,5,5',6
199	2,2',3,3',4,5,6,6'
201	2,2',3,3',4,5,5',6'
203	2,2',3,4,4',5,5',6
205	2,3,3',4,4',5,5',6
	NONACHLOROBIPHENYLS
206	2,2',3,3',4,4',5,5',6

BZ# = identification numbers adopted by the International Union of Pure and Applied Chemists (IUPAC).

Table 5. Chlorinated dibenzo-p-dioxin (CDD) and chlorinated dibenzofuran (CDF) congeners quantified in fish tissue samples.

CDD	Level of Quantification
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1.0 ppt
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PCDD)	1.0 ppt
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.0 ppt
1,2,3,6,7,8-HxCDD	1.0 ppt
1,2,3,7,8,9-HxCDD	1.0 ppt
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.0 ppt
1,2,3,4,6,7,8,9,-Octachlorodibenzo-p-dioxin (OCDD)	1.0 ppt
CDF	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	1.0 ppt
1,2,3,7,8-Pentachlorodibenzofuran (PCDF)	1.0 ppt
2,3,4,7,8-PCDF	1.0 ppt
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.0 ppt
1,2,3,6,7,8-HxCDF	1.0 ppt
1,2,3,7,8,9-HxCDF	1.0 ppt
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.0 ppt
1,2,3,4,7,8,9-HpCDF	1.0 ppt
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.0 ppt

Table 6. Coplanar PCB congeners analyzed for Michigan's Fish Contaminant Monitoring Program.

BZ#	Structure	Quantification Limit (ppt)
	TETRACHLOROBIPHENYLS	
077	3,3'4,4'	50.0
081	3,4,4',5	50.0
	PENTACHLOROBIPHENYLS	
105	2,3,3',4,4'	50.0
114	2,3,4,4',5	50.0
118	2,3',4,4',5	50.0
123	2',3,4,4',5	50.0
126	3,3',4,4',5	50.0
	HEXACHLOROBIPHENYLS	
156	2,3,3',4,4',5	50.0
157	2,3,3',4,4',5'	50.0
167	2,3',4,4',5,5'	50.0
169	3,3',4,4',5,5'	50.0
	HEPTACHLOROBIPHENYLS	
189	2,3,3',4,4',5,5'	50.0

BZ# = identification numbers adopted by the International Union of Pure and Applied Chemists (IUPAC).
ppt = part per trillion (ng/Kg)

Table 7. Halogenated organic chemicals and mercury analyzed in caged fish tissue samples.

Analyses for all caged fish sites:	Level of Quantification
Mercury	0.01 ppm
Hexachlorobenzene	0.002 ppm
Dieldrin	0.002 ppm
4,4'-DDE	0.005 ppm
4,4'-DDD	0.002 ppm
4,4'-DDT	0.004 ppm
Heptachlor	0.002 ppm
Heptachlor Epoxide	0.002 ppm
Oxychlordane	0.002 ppm
gamma-Chlordane	0.002 ppm
trans-Nonachlor	0.002 ppm
alpha-Chlordane	0.002 ppm
cis-Nonachlor	0.003 ppm
Total PCB (sum of 83 congeners)	0.001 ppm
Additional analyses for the Saginaw River watershed:	
2,4'-DDD	0.002 ppm
2,4'-DDT	0.004 ppm
PBB (Firemaster BP-6)	0.04 ppm
Pentachlorostyrene	0.034 ppm
Hexachlorostyrene	0.018 ppm
Heptachlorostyrene	0.006 ppm
Octachlorostyrene	0.001 ppm

Table 8. Trigger levels used by the MDCH to establish sport fish consumption advisories.

Chemical	MDCH Trigger Level
Total Chlordane	0.3 ppm (= mg/kg)
Total DDT	5.0 ppm
Dieldrin	0.3 ppm
Dioxin Toxic Equivalents#	10.0 ppt (= ng/kg)
Heptachlor (+Heptachlor Epoxide)	0.3 ppm
Mercury	
Restrict Consumption	0.5 ppm
No Consumption	1.5 ppm
Mirex	0.1 ppm
Total PCB	
General Population	2.0 ppm
Women of Child Bearing Age and Children Under 15 Years	
1 Meal Per Week	0.05 ppm
1 Meal Per Month	0.2 ppm
6 Meals Per Year	1.0 ppm
No Consumption	1.9 ppm
Toxaphene	5.0 ppm

The MDCH advisory trigger level for dioxin applies to total 2,3,7,8-TCDD toxic equivalent concentrations.

Table 9. Summary of chemicals quantified in edible portion fish tissue samples.

Chemical*	# of Sites Monitored	# of Sites Quantified	Concentration Range (ppm)	Location and Species with Maximum Concentration
Beta-BCH	18	1	K 0.001-0.003	Fremont Lake- Carp
Total Chlordane	18	15	K 0.001-0.137	Green Bay, Cedar River- Walleye
Total DDT	18	18	K 0.001-1.095	Baldwin River- Brown Trout
Dieldrin	18	15	K 0.001-0.017	Lake Macatawa- Walleye
Heptachlor	18	3	K 0.001-0.002	Fawn River- Smallmouth Bass
Heptachlor Epoxide	18	5	K 0.001-0.003	Lake Macatawa- Walleye
Hexachlorobenzene	18	4	K 0.001-0.007	Fremont Lake- Carp
Mirex	18	3	K 0.001-0.007	Lake Macatawa- Carp
Mercury	33	33	0.015-3.52	Craig Lake- Northern Pike
Octachlorostyrene	18	1	K 0.001-0.006	Lake Macatawa- Carp
PBB	18	7	K 0.001-0.001	St. Joseph River, Chapin Lake- Carp Green Bay, Cedar River- Longnose Sucker, Walleye, White Sucker Pigeon River, Vistula Rd- Redhorse Sucker Rouge River- Carp & Channel Catfish Thompson Lake- Carp
Total PCB	18	18	K 0.001-2.928	Lake Macatawa- Carp
Dioxin TEQ	1	1	0.37-9.88	Lake Huron, Saginaw Bay- Walleye

K = Unquantified at the level shown.

* Aldrin, Heptachlorostyrene, Hexachlorostyrene, Lidane, Pentachlorostyrene, Terphenyl, and Toxaphene were not quantified at any of the sites monitored.

Table 10. Edible portion fish tissue samples with total PCB concentrations exceeding the MDCH sport fish consumption advisory trigger levels.

				Number of Fish in Each Consumption Advisory Category*					
				Women and Children Consumption Advisory Categories				General Population Trigger Level	
Site ID	Location	Species	Median Conc. ppm	1 meal/week 0.05-0.2 ppm	1 meal/month 0.2-1.0 ppm	6 meals/year 1.0-1.9 ppm	No Cons. > 1.9 ppm	2.0 ppm	Current Advisory
	Lake Erie Watershed								
2005077	Rouge River	Carp	0.381	2/10	8/10				Yes
	below Ford Dam	Redhorse Sucker	0.052	5/10					Yes
2005078	Rouge River	Carp	0.293	6/14	8/14				Yes
2005080	below Newburgh Lake								
2005079	Rouge River	Carp	0.251	2/10	7/10	1/10			Yes
	Newburgh Lake	Channel Catfish	0.346	1/10	9/10				Yes
		Northern Pike	0.167	4/7	3/7				Yes
		White Sucker	0.169	5/10	5/10				Yes
	Lake Huron Watershed								
2005107	Thompson Lake	Black Crappie	0.257	4/10	6/10				Yes (#)
	Livingston County	Carp	1.764		2/10	4/10		4/10	Yes
		Northern Pike	0.231	3/10	5/10	1/10			Yes (#)

* Number of samples exceeding trigger level/number of samples analyzed.
\# Covered by the statewide mercury advisory or an advisory based on contaminants other than total PCBs.

Table 10. Continued.

				Number of Fish in Each Consumption Advisory Category*					
				Women and Children Consumption Advisory Categories				General Population Trigger Level	
Site ID	Location	Species	Median Conc. ppm	1 meal/week 0.05-0.2 ppm	1 meal/month 0.2-1.0 ppm	6 meals/year 1.0-1.9 ppm	No Cons > 1.9 ppm	2.0 ppm	Current Advisory
	Lake Michigan Watershed								
2004054	Lake Michigan	Longnose Sucker	0.664	1/9	7/9	1/9			Yes
2005050	Green Bay	Smallmouth Bass	0.109	12/12					Yes (#)
	Cedar River	Walleye	0.742	1/7	4/7	1/7		1/7	Yes (#)
		White Sucker	0.130	6/9	2/9				Yes
2005004	Baldwin River	Rainbow Trout	0.110	4/10	2/10				Yes (#)
2005021	Freemont Lake Newaygo County	Carp	0.090	6/10	1/10				No
2005047	Lake Macatawa	Carp	0.817	1/8	3/8	2/8		2/8	Yes (#)
		Walleye	0.427		8/10	1/10	1/10		Yes (#)
2005076	Pigeon River	Redhorse Sucker	0.088	8/10					No
	Vistula Road	Smallmouth Bass	0.041	4/10					No
2004151	Platte Lake	Channel Catfish	0.526	2/2					No
2005160		Northern Pike	0.070	1/1					Yes (#)
		Smallmouth Bass	0.092	2/2					Yes (#)
2005098	St. Joseph River	Carp	0.147	6/10	2/10				Yes
	Chapin Lake	Largemouth Bass	0.070	6/10					Yes (#)
	above Barren Springs	Smallmouth Bass	0.183	7/10	3/10				Yes (#)
2005130	Thornapple River Ada Impoundment	Carp	0.043	3/10	1/10				No

* Number of samples exceeding trigger level/number of samples analyzed.
\# Covered by the statewide mercury advisory or an advisory based on contaminants other than total PCBs.

Table 11. Edible portion fish tissue samples with mercury concentrations exceeding the MDCH sport fish consumption advisory trigger level.

Site ID	Location	Species	Species Median Concentration (ppm)	Range (ppm)	Exceedance* Rate	Current Advisory
Lake Erie Watershed						
2005079	Rouge River Newburg Lake	Northern Pike	0.415	0.24-0.67	1/7	Yes (#)
Lake Huron Watershed						
2005014	Cass River Above Caro	Redhorse Sucker	0.285	0.13-0.54	2/10	No
2005020	Fletcher Pond Alpena County	Northern Pike	0.443	0.24-0.68	4/10	Yes (a)
2005114	Nettie Lake Presque Isle County	Smallmouth Bass	0.330	0.27-0.54	1/10	Yes (a)
2005107	Thompson Lake Livingston County	Carp Northern Pike	0.139 0.855	0.06-0.53 0.56-1.30	1/10 10/10	Yes (#) Yes (a)
Lake Michigan Watershed						
2004054	Green Bay	Smallmouth Bass	0.560	0.38-0.95	9/12	Yes (#)
2005050	Cedar River	Walleye	0.750	0.24-1.04	5/7	Yes (#)
2005001	Antoine Lake	Northern Pike	0.382	0.08-0.44	1/10	Yes (a)
2005004	Baldwin River	Brown Trout	0.155	0.10-0.59	3/10	Yes (#)
2005015	Craig Lake	Northern Pike Walleye	1.108 0.726	0.45-3.05 0.45-0.86	6/7 6/7	Yes (a) Yes (a)

* Number of samples exceeding trigger levels/number of samples analyzed.
a The species and waterbody are covered by the statewide mercury advisory.
Covered by an advisory based on contaminants other than mercury

Table 11. Continued.

Site ID	Location	Species	Species Median Concentration (ppm)	Range (ppm)	Exceedance* Rate	Current Advisory
2005019	Fawn River Stubey Road	Smallmouth Bass	0.470	0.17-0.60	5/10	No
2005021	Fremont Lake	Carp	0.305	0.12-0.69	3/10	No
		Largemouth Bass	0.490	0.28-0.71	2/10	Yes (a)
2005028	Hanbury Lake	Largemouth Bass	0.972	0.48-1.24	9/10	Yes (a)
2005047	Lake Macatawa	Walleye	0.425	0.23-1.19	4/10	Yes (#)
2005076	Pigeon River Vistula Road	Smallmouth Bass	0.275	0.21-0.60	1/10	No
2004151	Platte Lake	Northern Pike	0.544	0.544	1/1	Yes (a)
2005160		Smallmouth Bass	0.483	0.43-0.54	1/2	Yes (a)
2005130	Thornapple River Ada Impoundment	Smallmouth Bass	0.291	0.25-0.53	1/5	Yes (a)
2005131	Thornapple River Cascade Impoundment	Smallmouth Bass	0.514	0.33-0.66	4/6	Yes (a)
Lake Superior Watershed						
2005018	Aligan Lake	Largemouth Bass	0.536	0.42-0.93	4/8	Yes (a)
	Baraga County	Northern Pike	0.989	0.51-1.12	3/3	

* Number of samples exceeding trigger levels/number of samples analyzed.
a The species and waterbody are covered by the statewide mercury advisory.
Covered by an advisory based on contaminants other than mercury

Table 11. Continued.

Site ID	Location	Species	Species Median Concentration (ppm)	Range (ppm)	Exceedance* Rate	Current Advisory
2005013	Carp Creek above Deer Lake Marquette County	Brook Trout	0.293	0.20-0.56	1/10	No
		White Sucker	0.225	0.18-0.56	1/7	Yes
2005017	Dead River Forestville Basin Marquette County	Northern Pike	0.784	0.57-1.50	6/6	Yes (a)
		Walleye	0.585	0.43-1.40	7/8	Yes (a)
2005025	Gratiot Lake Keweenaw County	Walleye	0.168	0.15-1.25	1/3	Yes (a)
2005037	King Lake Baraga County	Largemouth Bass	0.566	0.41-0.71	6/8	Yes (a)
2005045	Lake Independence Marquette County	Walleye	0.521	0.45-0.71	6/10	Yes (a)
2005056	Little Oxbow Lake Gogebic County	Largemouth Bass	0.354	0.16-0.55	2/7	Yes (a)
		Walleye	0.827	0.73-0.86	3/3	
2005071	Ormes Lake Gogebic County	Largemouth Bass	0.777	0.38-1.17	8/10	Yes (a)
2005081	Round Lake Marquette County	Largemouth Bass	0.928	0.77-1.23	10/10	Yes (a)
2005106	Teal Lake Marquette County	Walleye	0.241	0.13-1.12	2/10	Yes (a)

* Number of samples exceeding trigger levels/number of samples analyzed.
a The species and waterbody are covered by the statewide mercury advisory.
Covered by an advisory based on contaminants other than mercury

Table 12. Total Chlordane concentrations in edible portion samples.

Site ID	Location	Species	Species Median Concentration (ppm)	Range (ppm)	Exceedance* Rate	Current Advisory
2005047	Lake Macatawa Ottawa County	Carp	0.02	0.004-0.062	0/8	Yes

* Number of samples exceeding trigger levels/number of samples analyzed.

Table 13. Dioxin TEQ concentrations in edible portion samples.

Site ID	Location	Species	Species Median Concentration (ppt)	Range (ppt)	Exceedance* Rate	Current Advisory
2004046	Lake Huron	Walleye	0.93	0.49-9.88	0/10	No
	Saginaw Bay	Yellow Perch	0.54	0.37-1.83	0/10	No
2005047	Lake Macatawa Ottawa County	Carp	1.19	0.66-4.05	0/8	No

* Number of samples exceeding trigger levels/number of samples analyzed.

Table 14. Fish consumption water quality attainment categories for water bodies assessed for the 2006 report.

Location	Present Category	Proposed Category	Impairment	Species Sampled	New Record
Lake Erie Watershed					
Rouge River, Main Branch, downstream of Ford Dam, Wayne County	5	5	FCA PCB	Carp Redhorse Sucker	No
Rouge River, Middle Branch, downstream of Newburgh Lake, Wayne County	5	5	FCA PCB	Carp	No
Rouge River, Middle Branch, Newburgh Lake, Wayne County	4b	5	FCA PCB Fish Tissue Hg	Carp Channel Catfish Northern Pike White Sucker	No
Lake Huron Watershed					
Cass River, Above Caro, Tuscola County	none	2	none	Redhorse Sucker Rock Bass	Yes
Fletcher Pond, Alpena County	none	5	Fish Tissue Hg	Northern Pike	Yes
Nettie Lake, Presque Isle County	5	5	Fish Tissue Hg	Smallmouth Bass	No
Thompson Lake, Livingston County	5	5	FCA PCB Fish Tissue Hg	Black Crappie Carp Northern Pike	No
Lake Michigan Watershed					
Lake Michigan, Green Bay near Cedar River	5	5	FCA PCB, Fish Tissue Hg	Longnose Sucker Smallmouth Bass Walleye White Sucker	No
Antoine Lake, Dickinson County	3	2	none	Northern Pike Walleye	No
Baldwin River, Lake County	none	5	FCA PCB	Brown Trout	Yes
Craig Lake, Baraga County	5	5	Fish Tissue Hg	Northern Pike Walleye	No
Fawn River, Stubey Road St., Joseph County	5	5	Fish Tissue Hg	Carp Smallmouth Bass	No
Fremont Lake, Newaygo County	none	5	FCA PCB Fish Tissue Hg	Carp Largemouth Bass	Yes
Hanbury Lake, Dickinson County	none	5	Fish Tissue Hg	Largemouth Bass	Yes
Lake Macatawa, Ottawa County	5	5	FCA PCB Fish Tissue Hg	Carp Walleye	No

Table 14. Continued.

Location	Present Category	Proposed Category	Impairment	Species Sampled	New Record
Pigeon River, 136th Ave, Ottawa County	none	2	none	White Sucker	Yes
Pigeon River, Vistula Road, St. Joseph County	none	5	FCA PCB Fish Tissue Hg	Redhorse Sucker Rock Bass Smallmouth Bass	Yes
Platte Lake, Benzie County	none	3	FCA PCB Fish Tissue Hg	Channel Catfish Northern Pike Rock Bass Smallmouth Bass Walleye	Yes
St. Joseph River, Chapin Lake, Berrien County	5	5	FCA PCB	Carp Largemouth Bass Smallmouth Bass	No
Thornapple River, Ada and Cascade Impoundments, Kent County	none	5	FCA PCB Fish Tissue Hg	Carp Smallmouth Bass	Yes
Tucker Lake, Leelanau County	none	2	none	Brown Bullhead	Yes
Lake Superior Watershed					
Aligan Lake (Unnamed Lake), Baraga County	5	5	Fish Tissue Hg	Largemouth Bass Northern Pike Yellow Perch	No
Carp Creek, Upstream of Deer Lake, Marquette County	5	2	none	Brook Trout White Sucker	No
Dead River, Forestville Basin, Marquette County	5	5	Fish Tissue Hg	Northern Pike Walleye	No
Gratiot Lake, Keweenaw County	none	3	Fish Tissue Hg	Northern Pike Smallmouth Bass Walleye	Yes
King Lake, Baraga County	none	5	Fish Tissue Hg	Largemouth Bass	Yes
Lake Independence, Marquette County	5	5	Fish Tissue Hg	Walleye	No
Little Oxbow Lake, Gogebic County	none	3	FCA PCB Fish Tissue Hg	Largemouth Bass Walleye	Yes
Ormes Lake, Gogebic County	none	5	Fish Tissue Hg	Largemouth Bass	Yes
Round Lake, Marquette County	5	5	Fish Tissue Hg	Largemouth Bass	No
Teal Lake, Marquette County	none	2	Fish Tissue Hg	Walleye	Yes

Table 15. Net uptake of contaminants and 95% confidence interval in caged fish tissue samples collected in 2005. Concentrations of organic contaminants are lipid normalized; mercury concentrations are wet weight.

Site Number		Sample Size	Mercury (ppb)	Total PCB (ppb)	Total Chlordane (ppb)	Total DDT (ppb)	Total Dioxin TEQ (ppt)
Black Creek							
2005006	Black Creek Maple Island Rd.	4	NQU	1.8 ± 2.5	ND	20 ± 5.5	NT
2005007	Black Creek Mill Iron Rd	4	NQU	NQU	ND	8.5 ± 4.9	NT
2005008	Black Creek Mouth	4	NQU	4.6 ± 4.9	ND	13.3 ± 7.2	NT
Escanaba River							
2005122	Escanaba River CR 420	4	5.5 ± 1.5	2.7 ± 1.7	NQU	3.2 ± 3	0.08 ± 0.09
2005121	Escanaba River Mouth	4	5 ± 1.5	13 ± 11	1.8 ± 1.2	10.9 ± 10.1	0.18 ± 0.17
Macatawa River							
2005061	Macatawa River u/s 112th Ave	4	NQU	23 ± 121	7 ± 18	NQU	NT
2005060	Macatawa River d/s River Street	4	NQU	46 ± 21	4 ± 3	12 ± 13	NT
2005059	Lake Macatawa N. Buoy 11	4	NQU	26 ± 34	3 ± 5	16 ± 20	NT
Ottawa River							
2005074	Ottawa River Mouth	2	NQU	146 ± 64	7 ± 13	24 ± 30	NT
Saginaw River							
2005289	Saginaw River u/s Middle Ground I.	4	NQU	32 ± 32	1 ± 2	16 ± 11	0.63 ± 0.28
2005088	Saginaw River d/s Middle Ground I.	4	3 ± 2	44 ± 32	3 ± 2	19 ± 11	0.78 ± 0.28
2005087	Saginaw River Truman Parkway	4	NQU	52 ± 32	3 ± 2	23 ± 11	0.98 ± 0.28

NQU = no quantifiable uptake
ND = not detected

Table 15. Continued.

Site Number		Sample Size	Mercury (ppb)	Total PCB (ppb)	Total Chlordane (ppb)	Total DDT (ppb)	Total Dioxin TEQ (ppt)
2005086	Saginaw River Detroit & Mackinaw RR	4	NQU	44 ± 32	2 ± 2	9 ± 11	0.69 ± 0.28
2005085	Saginaw River d/s Wilder Rd	3	3 ± 1	83 ± 51	2 ± 2	16 ± 17	0.96 ± 0.43
2005084	Saginaw River Mouth	4	NQU	77 ± 32	2 ± 2	17 ± 11	0.74 ± 0.28
2005083	Saginaw Bay Gull Island	2	NQU	44 ± 184	NQU	19 ± 63	0.65 ± 1.55

NQU = no quantifiable uptake
ND = not detected
NT =not tested

Table 16. A comparison of the maximum concentrations of major contaminants measured in caged fish samples from Great Lakes tributaries. Concentrations of chlorinated contaminants are lipid-normalized; mercury concentrations are wet weight.

Tributary / Sample Year	PCB (ppb)	DDT (ppb)	Chlordane (ppb)	Mercury (ppb)
Lake Erie Watershed				
Belle River / 1997	NQU	NQU	NQU	NQU
Black River (St. Clair Co) / 1993	12	20	0.6	5
Clinton River / 2001	37	22	7	10
Huron River / 2002	2.4	24	NQU	NQU
Ottawa River / 2005	146	24	7	NQU
Raisin River / 2004	65	20	1	NQU
Rouge River / 2000	28	21	4	8
Lake Huron Watershed				
Au Gres River / 1991	NQU	5	ND	NQU
Au Sable River / 1996	NQU	6	1	NQU
Kawkawlin River / 2001	12	12	NQU	NQU
Saginaw River / 2005	83	23	3	3
Thunder Bay River / 1996	NQU	4	2	NQU
Lake Michigan Watershed				
Black Creek (Muskegon Co) / 2005	5	20	ND	NQU
Black River (VanBuren Co) / 2002	1	6	ND	5
Boardman River / 2003	9	3	ND	6
Escanaba River / 2005	13	11	2	5
Galien River / 2002	NQU	3.3	0.4	2
Grand River / 2001	16	17	5	NQU
Kalamazoo River / 1999	183	NT	NT	NT
Macatawa River / 2005	46	16	7	NQU
Manistique River / 2002	NQU	2	ND	NQU
Menominee River / 1993	NQU	6	1	NQU
Muskegon River / 2002	NQU	10	NQU	5
Pere Marquette / 2003	5	1	ND	6
Rabbit River / 2003	4	3	0.5	NQU
St. Joseph River / 2001	52	11	4	NQU
White River / 1992	NQU	8	0.5	NQU
Lake Superior Watershed				
Ontonagon River / 1992	NQU	3	ND	NQU
Two Hearted River / 1992	NQU	2	0.6	NQU

NQU = no quantifiable uptake
ND = not detected
NT =not tested

Table 17. Annual rates of change in contaminant concentrations measured in whole fish collected from fixed station trend monitoring sites.

WATERBODY	SPECIES	RATE OF CHANGE (%) AND PROBABILITY (p)									
		Mercury		Total PCB		Total DDT		Total Chlordane		Dioxin TEQ	
		%	p	%	p	%	p	%	p	%	p
GREAT LAKES AND CONNECTING CHANNELS											
Lake Michigan											
Little Bay de Noc	Carp	+/-3.0		*+/-8.0		-4.0	<0.10	-7.6	<0.001		
	Walleye	6.2	<0.001	-5.0	<0.005	-8.1	<0.001	-10.2	<0.001		
Grand Traverse Bay	Carp	+/-2.6		-10.3	<0.01	-10.5	<0.01	-8.6	<0.01		
	Lake Trout	6.3	<0.001	-2.6	<0.05	-7.2	<0.001	-7.4	<0.001	+/-13.0	
Lake Huron											
Saginaw Bay	Carp	+/-2.6		-6.3	<0.001	-2.7	<0.10	-7.6	<0.001	-5.1	<0.05
	Walleye	5.9	<0.001	-3.5	<0.005	-5.4	<0.001	-6.2	<0.001		
Thunder Bay	Carp	+/-4.8		+/-4.5		+/-4.4		-10.0	<0.001		
	Lake Trout	3.4	<0.001	-4.6	<0.001	-6.8	<0.001	-13.5	<0.001	-4.4	<0.005
	Walleye	+/-2.4		-6.8	<0.001	-10.5	<0.001	-14.3	<0.001		
Lake Superior											
Keweenaw Bay	Lake Trout	+/-2.0		-10.8	<0.001	-9.8	<0.001	-9.7	<0.001	-5.6	<0.01
Lake Erie											
Brest Bay	Carp	7.4	<0.01	+/-5.1		+/-4.3		-6.0	<0.001		
	Walleye	+/-2.1		-6.2	<0.001	-11.0	<0.001	-13.4	<0.001		
Lake St. Clair											
L'Anse Creuse Bay	Carp	3.7	<0.05	-8.1	<0.001	-9.1	<0.001	-11.4	<0.001		
	Walleye	4.4	<0.005	-8.0	<0.001	-13.8	<0.001	-14.4	<0.001		
St. Clair River											
Algonac	Carp	+/-4.6		-11.9	<0.005	-9.1	<0.005	-14.6	<0.001		
Detroit River											
Grassy Island	Carp	-6.2	<0.001	+/-3.5		-3.0	<0.05	+/-3.6			
	Walleye	+/-1.9		-4.6	<0.001	-7.2	<0.001	-10.7	<0.001		
St. Marys River											
Munuscong Bay	Carp	+/-1.8		-8.9	<0.01	-14.0	<0.001	-11.8	<0.001		
	Walleye	+/-2.2		-4.9	<0.001	-9.3	<0.001	-7.8	<0.001		
	Average**	3.9		-6.9		-8.3		-10.3		-5.0	
	Median**	5.2		-6.3		-9.1		-10.1		-5.1	

*+/- indicates that no significant trend was measured (p>0.05) and the value presented is an estimate of the minimum detectable trend.
**Average and median concentrations were calculated using only Great Lakes and Connecting Channels and species with significant trends.

Table 17. Continued

WATERBODY	SPECIES	RATE OF CHANGE (%) AND PROBABILITY (p)									
		Mercury		Total PCB		Total DDT		Total Chlordane		Dioxin TEQ	
		%	p	%	p	%	p	%	p	%	p
INLAND RIVERS											
Grand River	Carp	2.8	<0.10	-4.9	<0.01	+/-4.0		-4.4	<0.005		
Kalamazoo River	Carp	+/-1.8		-8.7	<0.001	-8.5	<0.001	-5.2	<0.005		
Muskegon River	Carp	+/-3.6		-16.0	<0.001	-10.4	<0.001	-13.3	<0.001		
River Raisin	Carp	+/-2.2		-10.9	<0.001	-9.9	<0.001	-9.8	<0.001		
St. Joseph River	Carp	+/-1.6		+/-3.4		-7.1	<0.001	-3.7	<0.10		
INLAND LAKES											
Grand Sable Lake	Lake Trout	7.6	<0.01	9.1	<0.001	+/-4.3		-8.6	<0.05		
Lake Gogebic	Walleye	-7.4	<0.001	-15.9	<0.001	-9.7	<0.001	#NA			
South Manistique Lake	Walleye	-1.6	<0.05	-4.3	<0.001	-2.8	<0.05	NA			
Higgins Lake	Lake Trout	-2.1	<0.10	-10.7	<0.001	-14.7	<0.001	-7.4	<0.005		
Houghton Lake	Largemouth Bass	+/-1.8		-12.0	<0.001	-8.1	<0.001	-9.0	<0.001		
Gull Lake	Largemouth Bass	1.5	<0.01	-4.5	<0.001	-9.3	<0.001	-12.8	<0.001		
Gun Lake	Largemouth Bass	+/-1.4		-3.5	<0.05	-3.8	<0.05	-4.9	<0.005		
Pontiac Lake	Largemouth Bass	+/-3.3		-4.6	<0.05	-5.2	<0.05	-12.5	<0.001		
	Average**	0.1		-7.2		-8.1		-8.3			
	Median**	-0.05		-6.8		-8.5		-8.6			

*+/- indicates that no significant trend was measured (p>0.05) and the value presented is an estimate of the minimum detectable trend.
**Average and median concentrations were calculated using only inland rivers and lakes and species with significant trends.
#Trend estimates were not available because contaminant concentrations were below the analytical detection level.

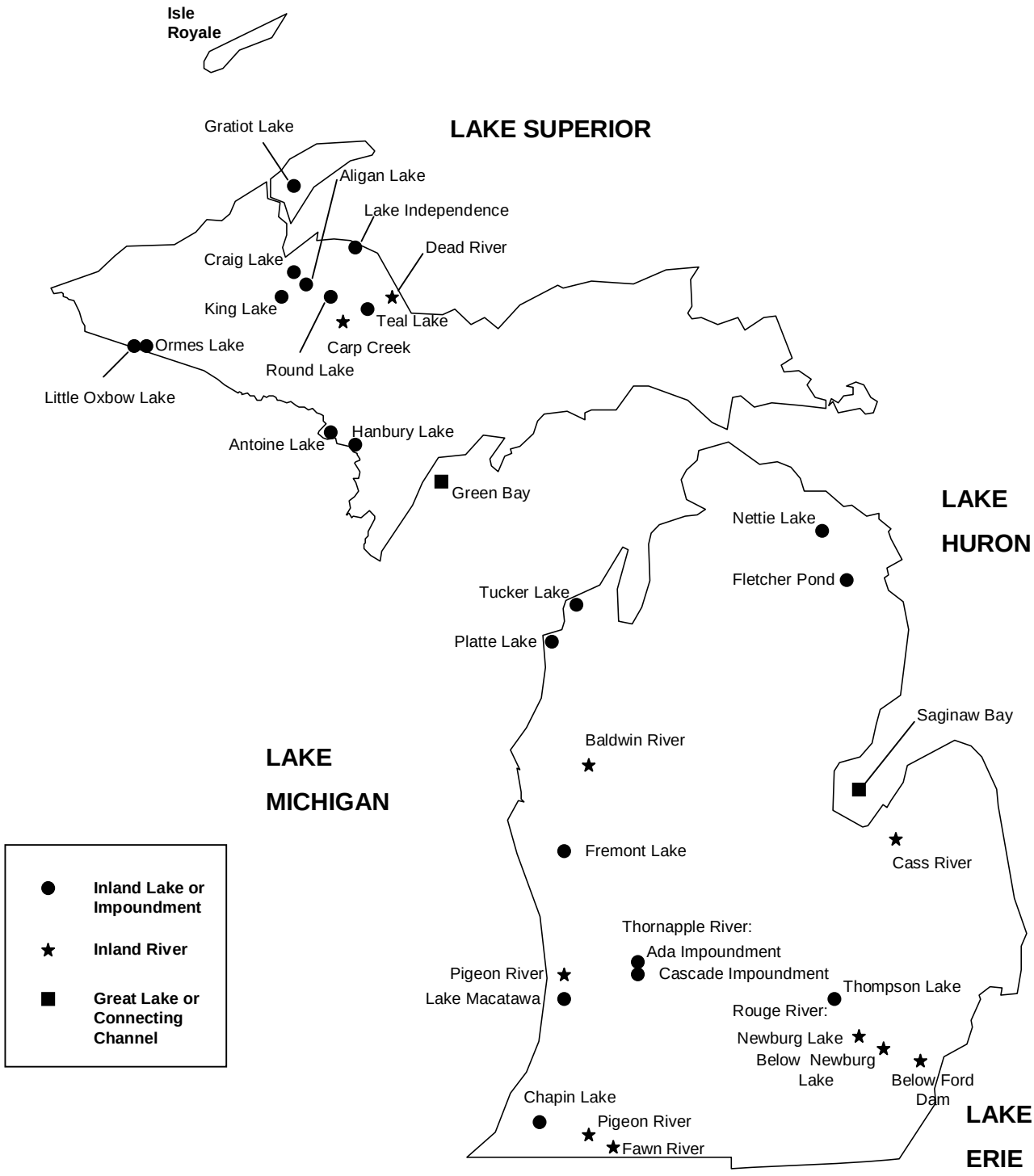


Figure 1. Edible portion fish sample locations

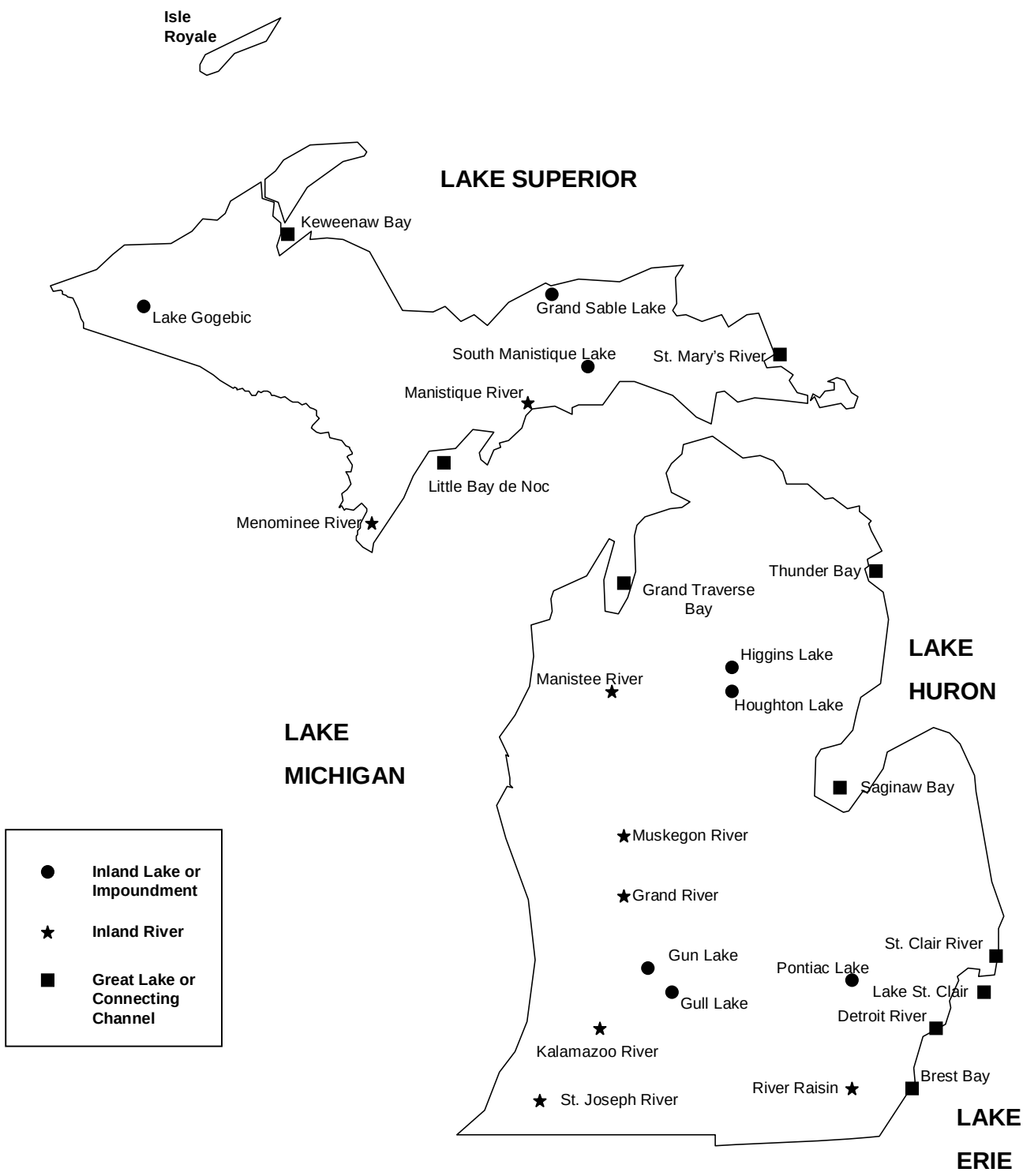


Figure 2. Whole-fish trend monitoring sites.

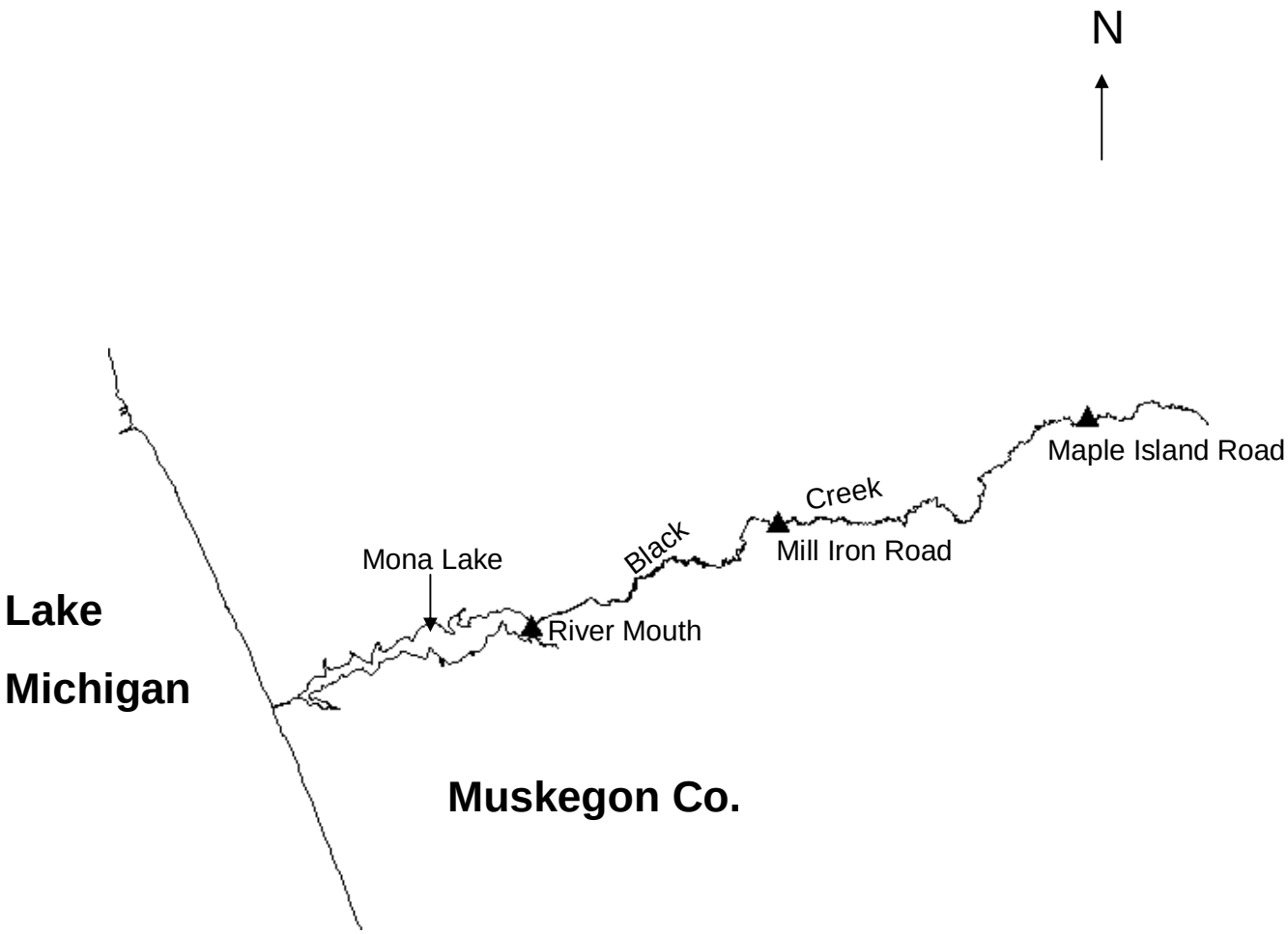


Figure 3. Black Creek 2005 caged-fish monitoring locations.

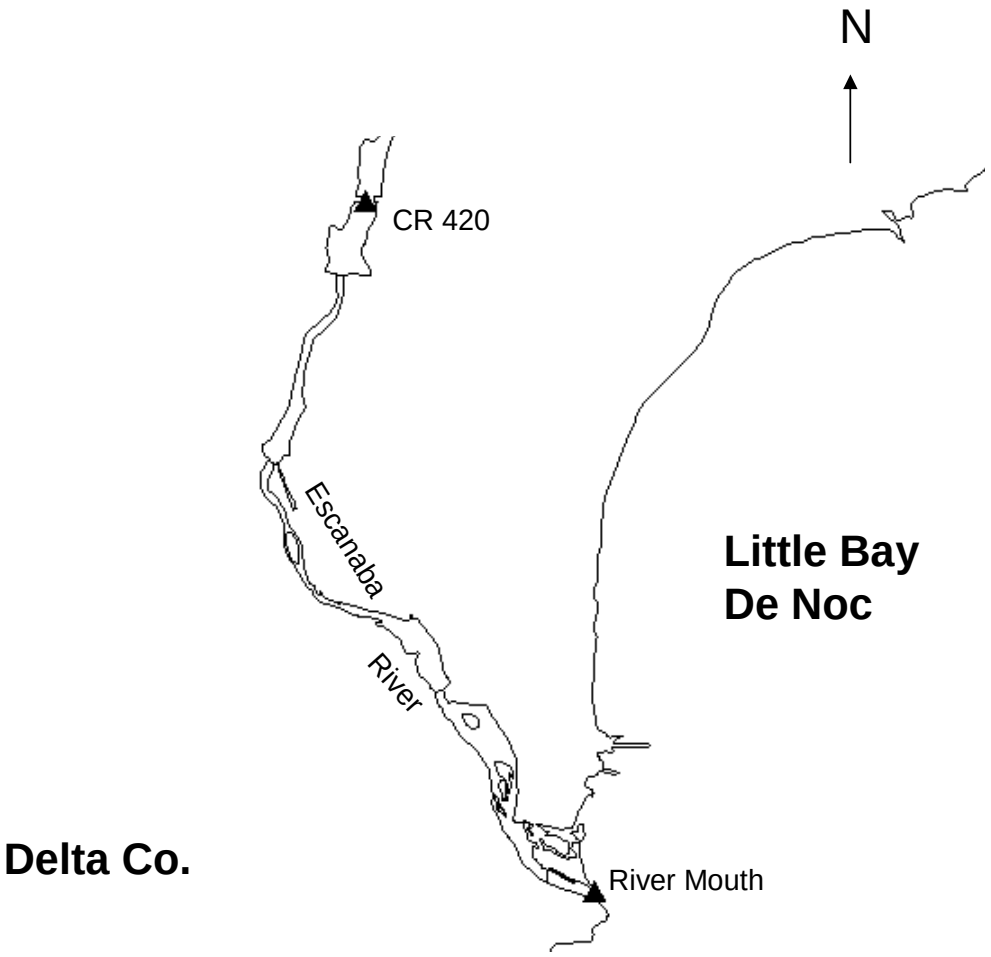


Figure 4. Escanaba River 2005 caged-fish monitoring locations.

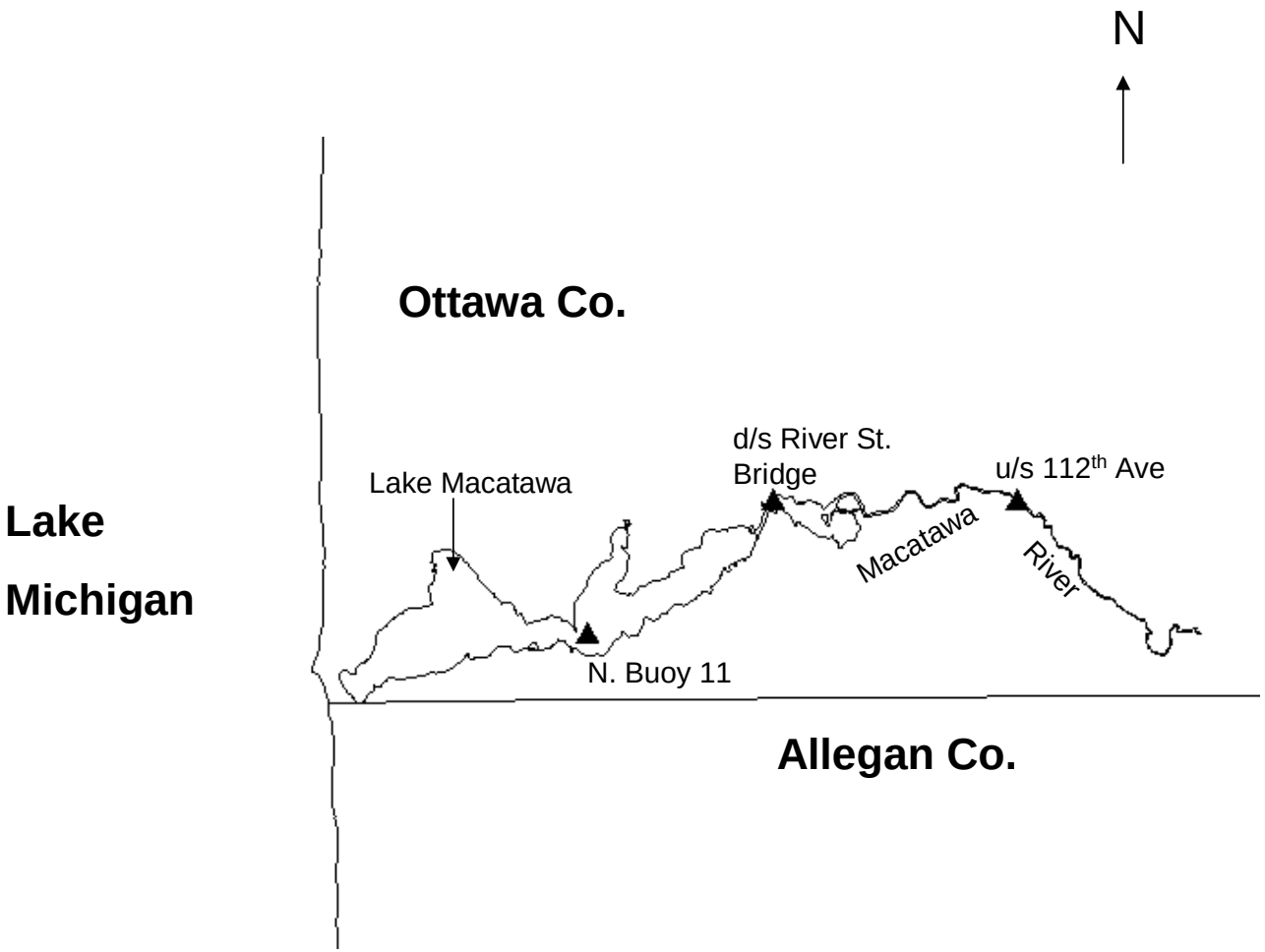


Figure 5. Macatawa River 2005 caged-fish monitoring locations.

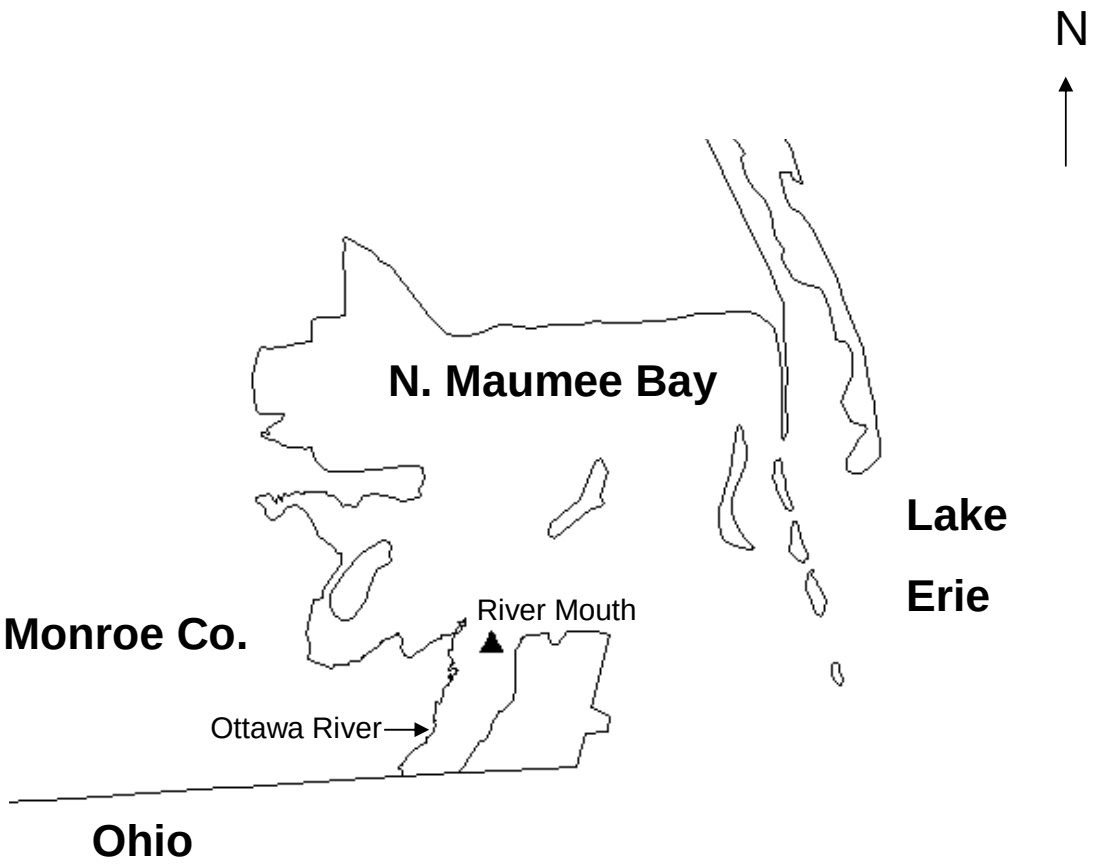


Figure 6. Ottawa River 2005 caged-fish monitoring locations.

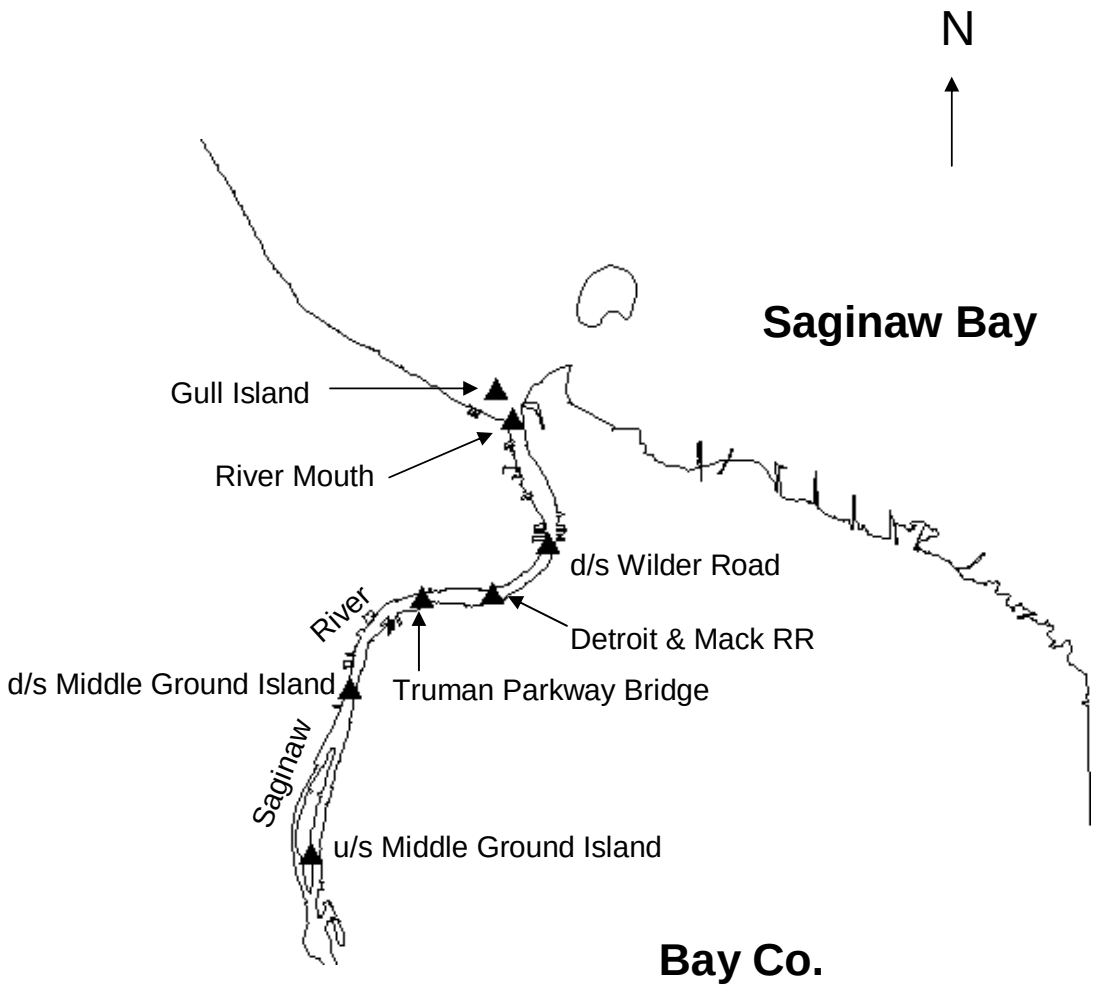


Figure 7. Saginaw River 2005 caged-fish monitoring locations.

Figure 8. Total length versus total PCB concentration in carp collected from the Rouge River below the Ford Dam in 2005 (ID 2005077).

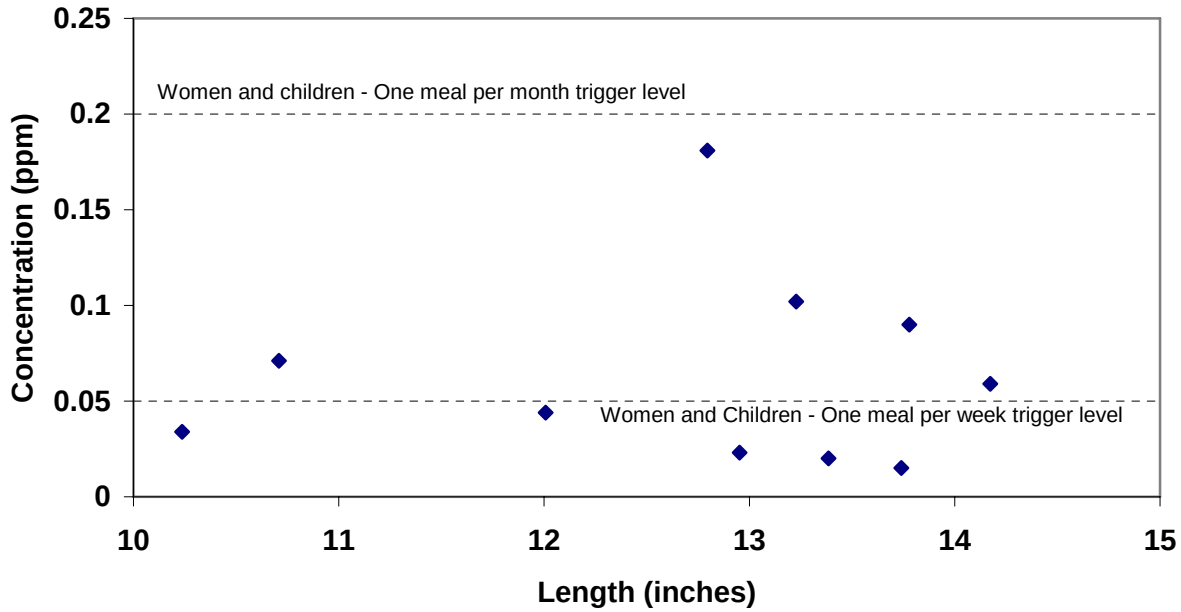


Figure 9. Total length versus total PCB concentration in redhorse sucker collected from the Rouge River below the Ford Dam in 2005 (ID 2005077).

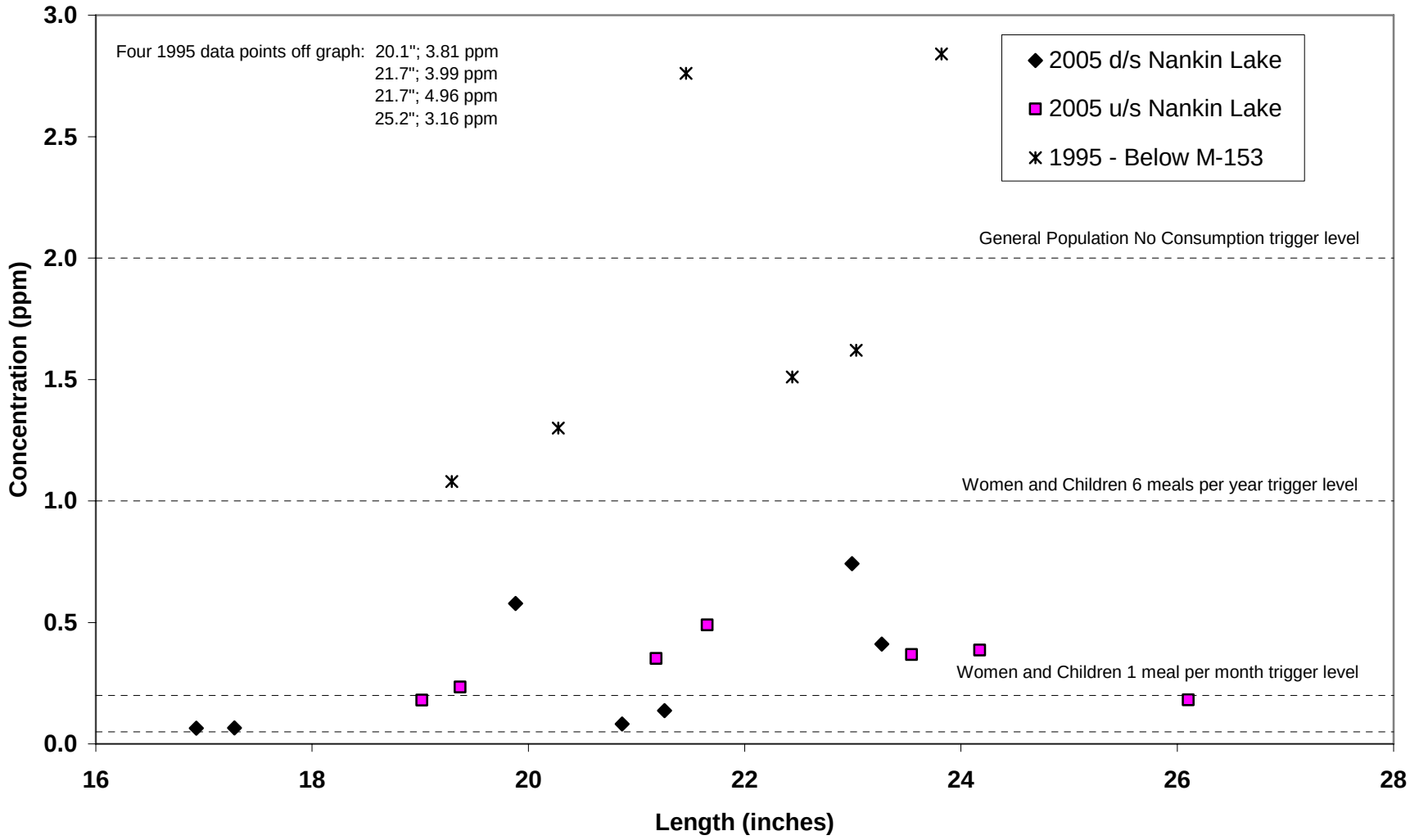


Figure 10. Total length versus total PCB concentration in carp collected from the Rouge River downstream of Newburgh Lake, Wayne Co. in 1995 (ID 95059) and 2005 (IDs 2005078 & 2005080).

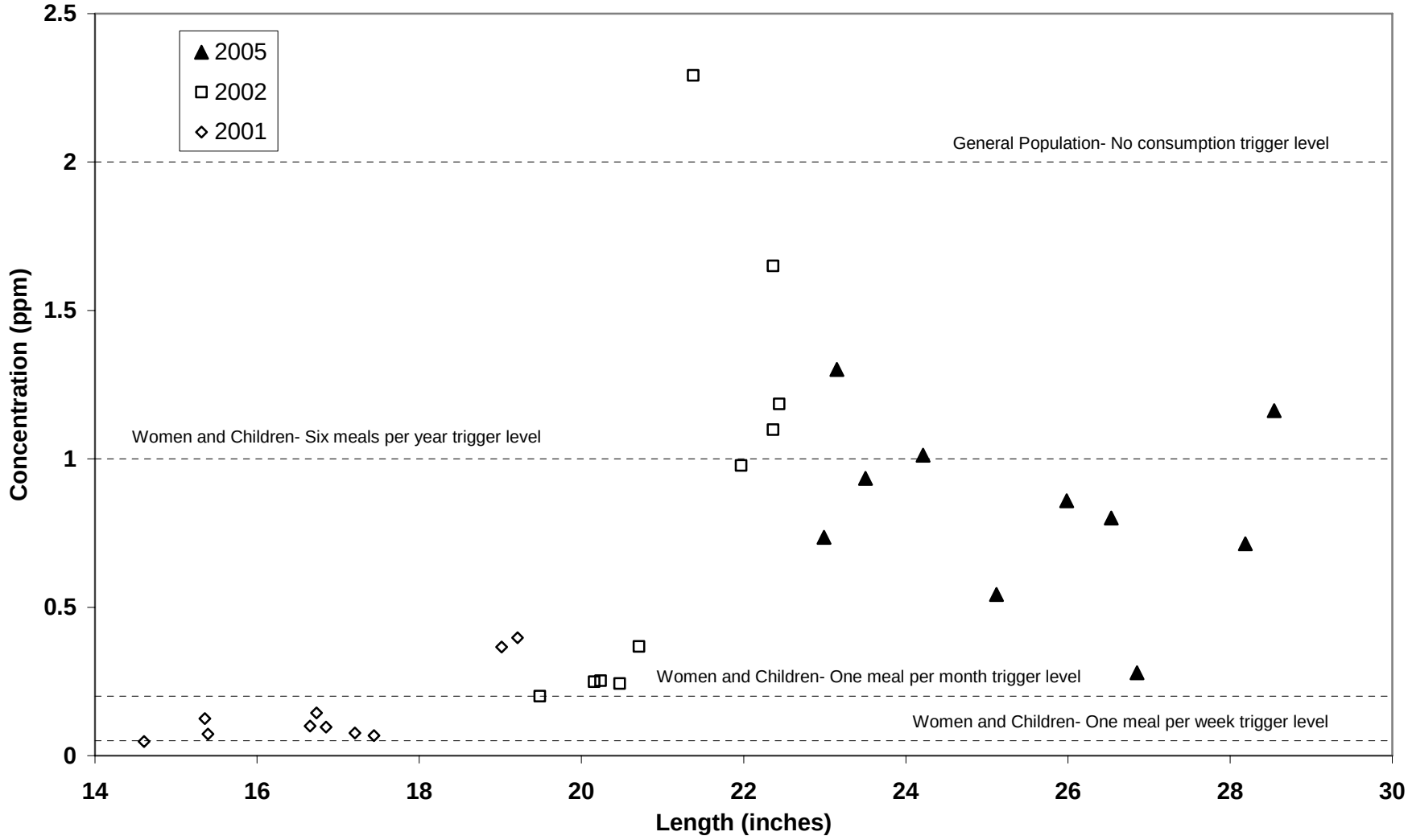


Figure 11. Total length versus total PCB concentration in carp collected from Newburg Lake, Wayne Co. in 2001(ID 2001097), 2002 (ID 2002085), and 2005 (ID 2005079).

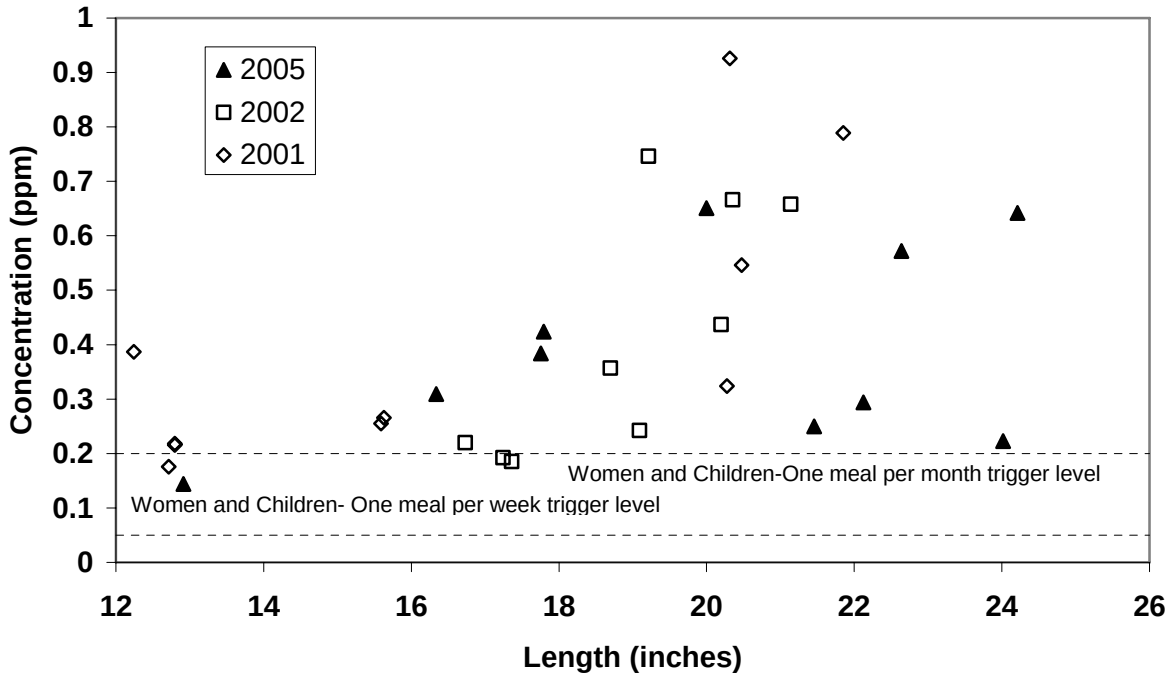


Figure 12. Total length versus total PCB concentration in channel catfish collected from Newburg Lake, Wayne Co. in 2001 (ID 2001097), 2002 (ID 2002085), and in 2005 (ID 2005079).

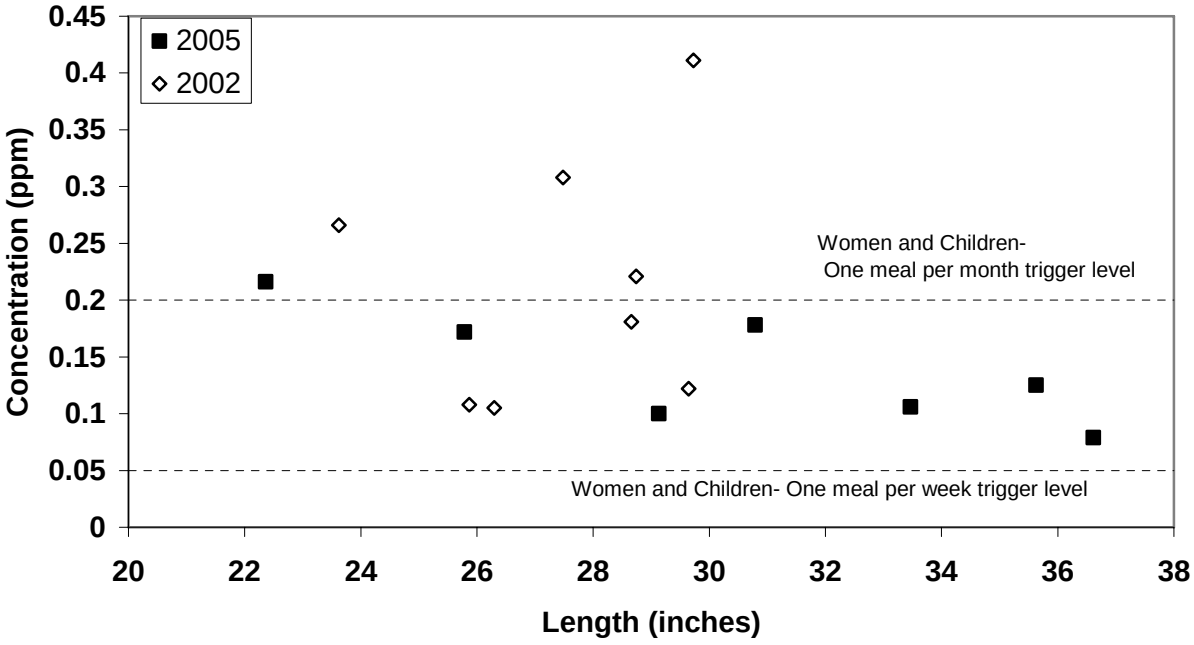


Figure 13. Total length versus total PCB concentration in northern pike collected from Newburgh Lake, Wayne Co. in 2002 (ID 2002085), and 2005 (ID 2005079).

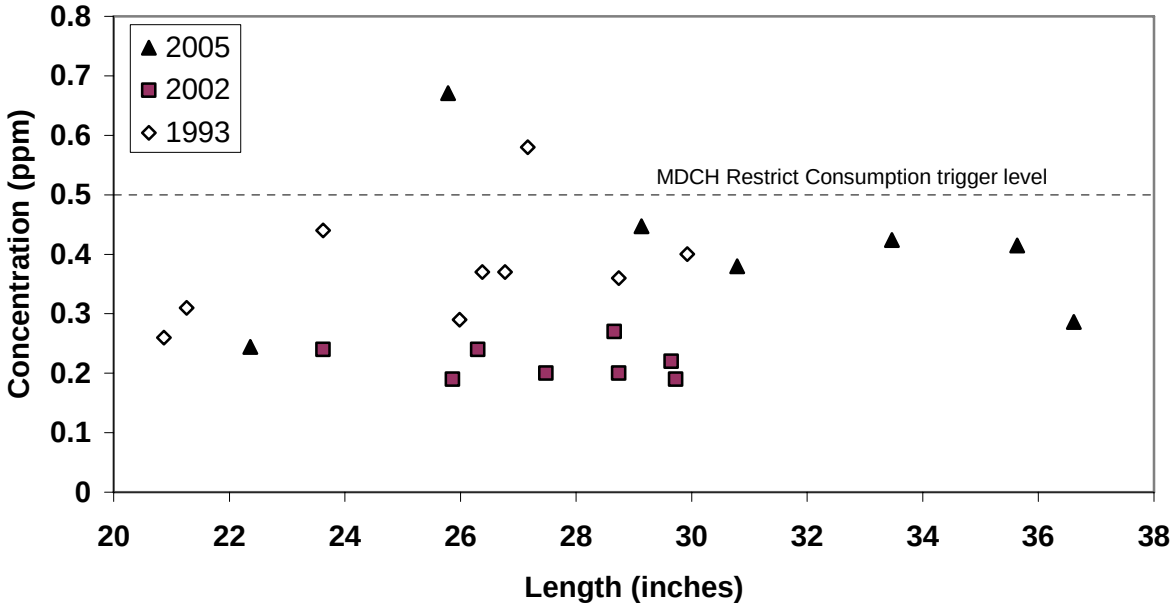


Figure 14 . Total length versus mercury concentration in northern pike collected from Newburgh Lake, Wayne Co. in 1993 (ID 93014), 2002 (ID 2002085), and 2005 (ID 2005079).

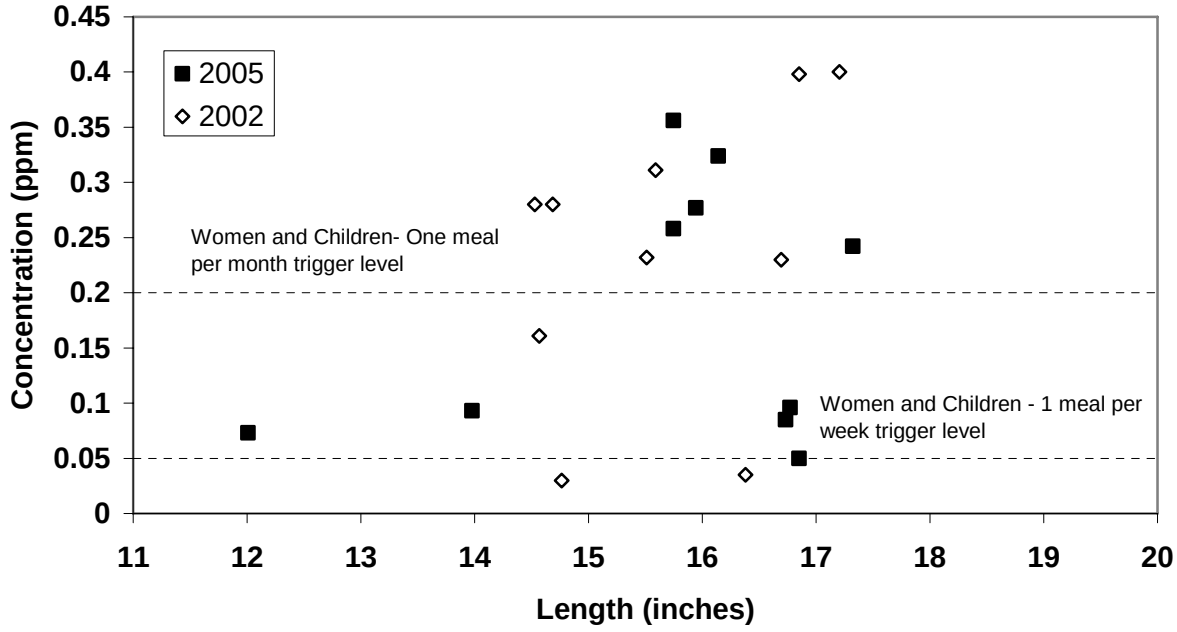


Figure 15. Total length versus total PCB concentration in white sucker collected from Newburg Lake, Wayne Co. in 2002 (ID 2002085), and in 2005 (ID 2005079).

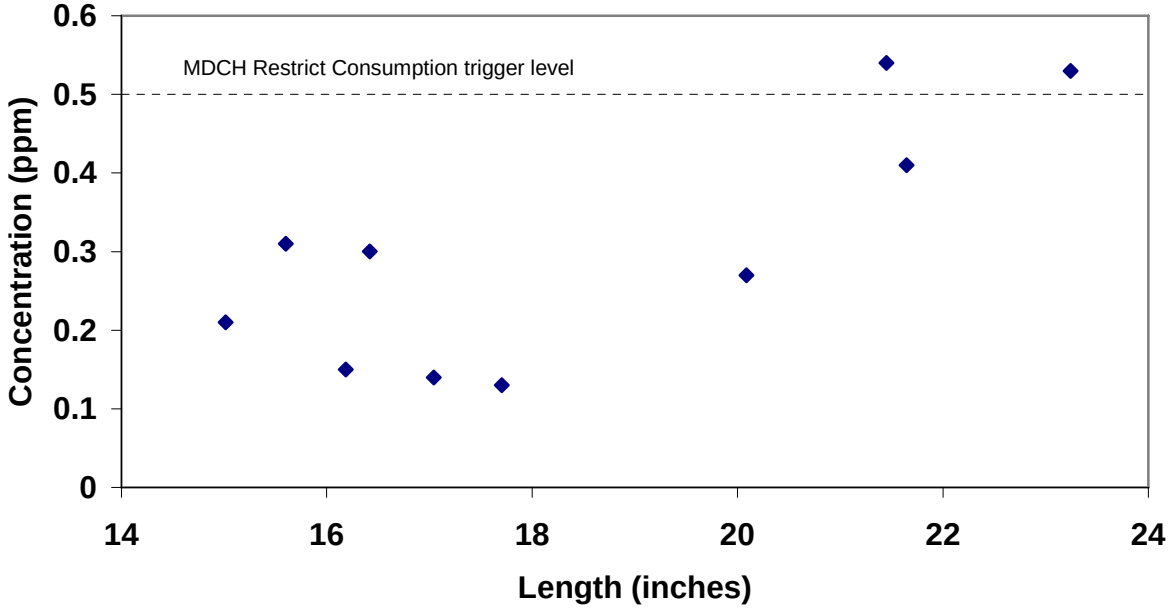


Figure 16. Total length versus mercury concentration in redhorse sucker collected from the Cass River above Caro, Tuscola Co. in 2005 (ID 2005014).

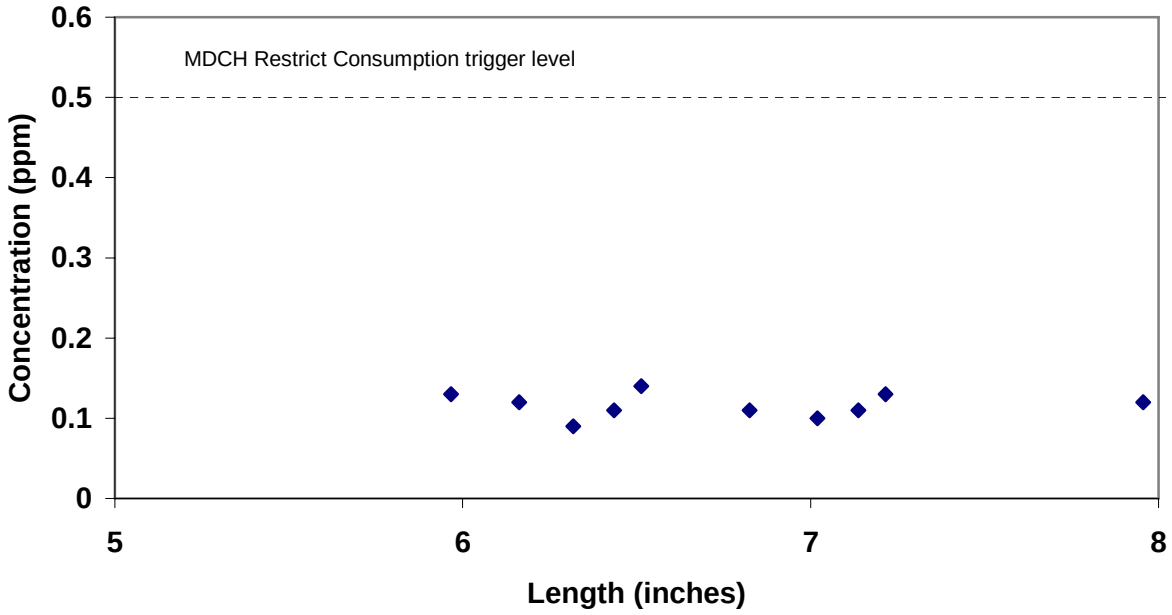


Figure 17. Total length versus mercury concentration in rock bass collected from the Cass River above Caro, Tuscola Co. in 2005 (ID 2005014).

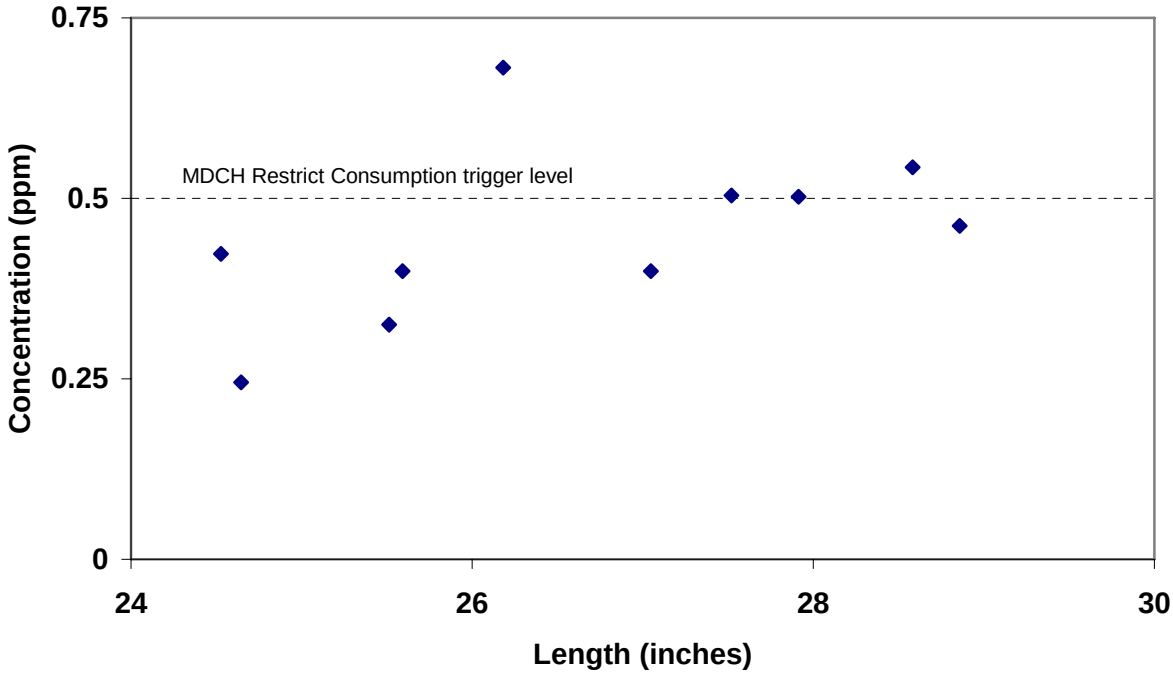


Figure 18. Total length versus mercury concentration in northern pike collected from Fletcher Pond, Alpena County, in 2005 (ID 2005020).

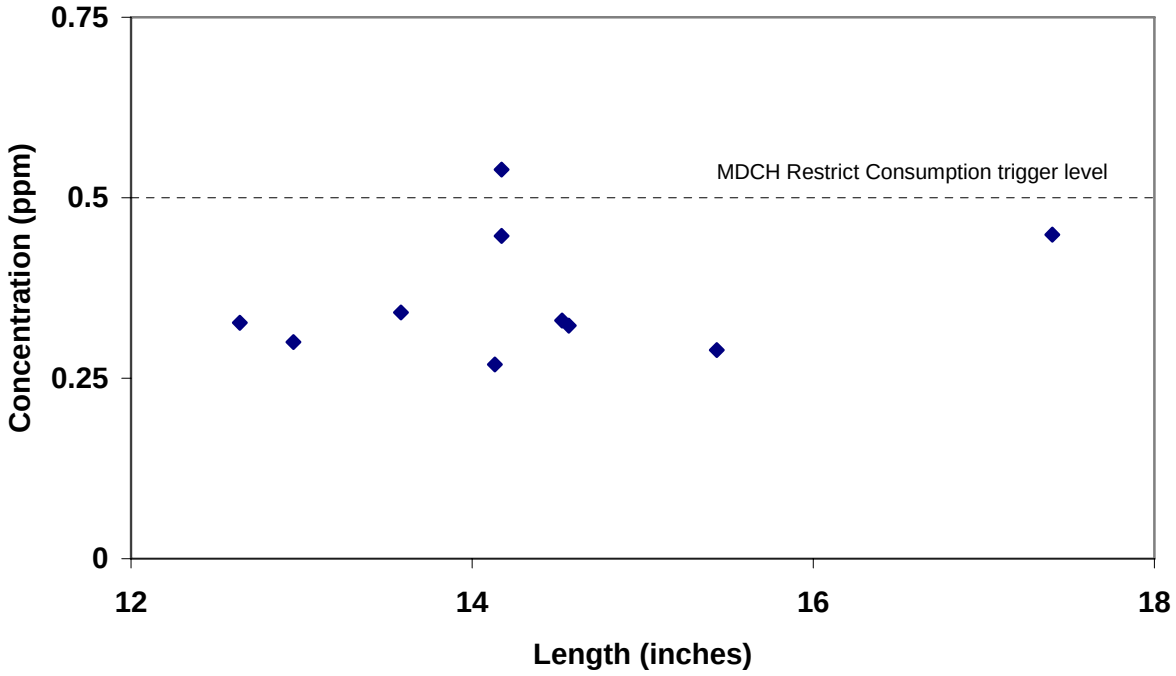


Figure 19. Total length versus mercury concentration in smallmouth bass collected from Nettie Lake, Presque Isle County, in 2005 (ID 2005114).

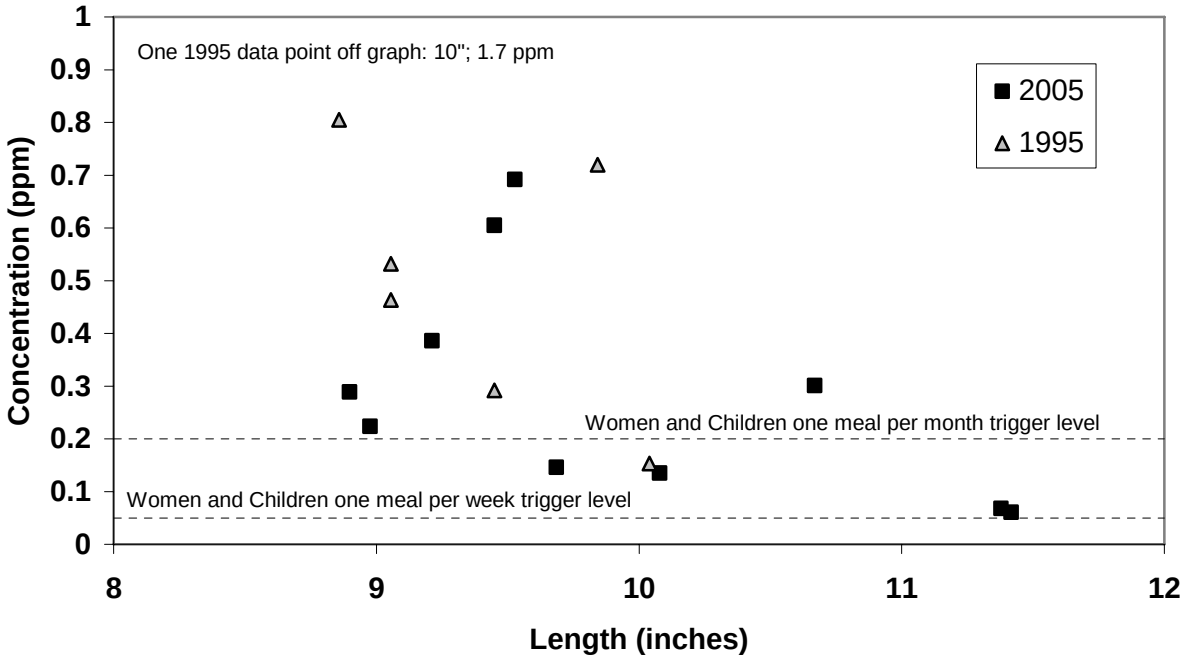


Figure 20. Total length versus total PCB concentration in black crappie collected from Thompson Lake, Livingston Co. in 1995 (ID 95038) and in 2005 (ID 2005107).

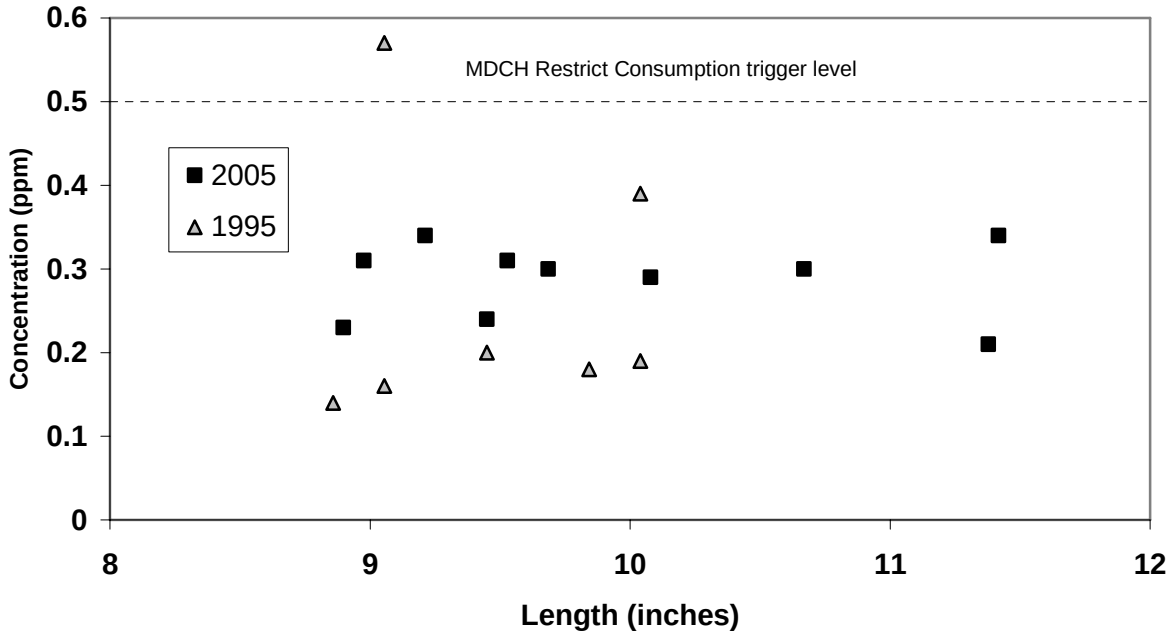


Figure 21. Total length versus mercury concentration in black crappie collected from Thompson Lake, Livingston Co. in 1995 (ID 95038) and in 2005 (ID 2005107).

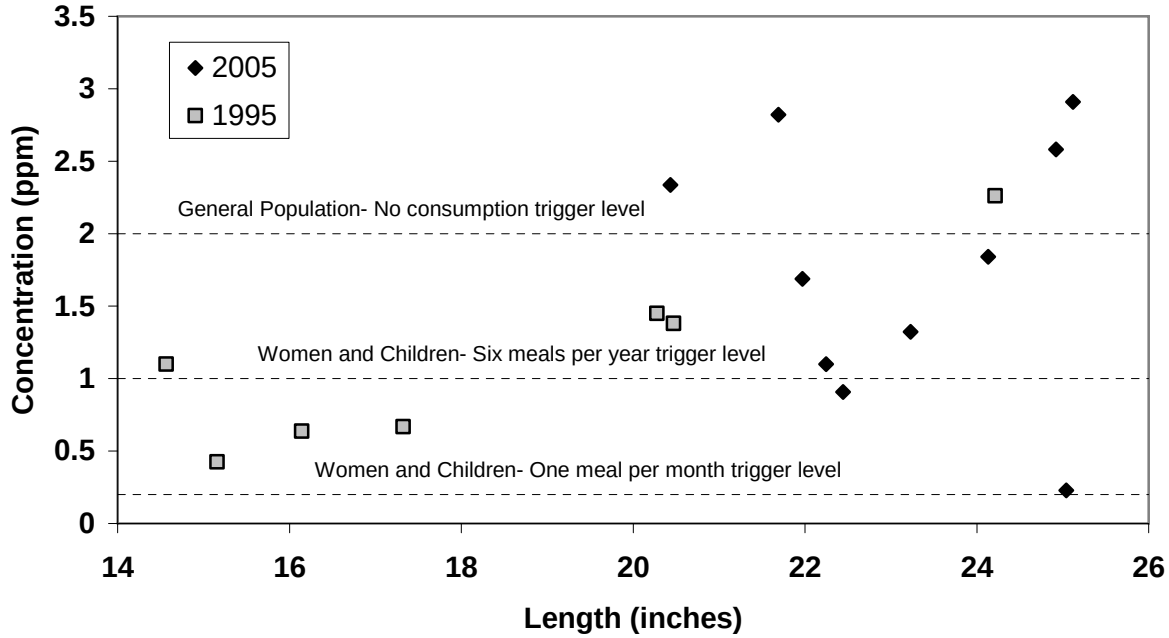


Figure 22. Total length versus total PCB concentration in carp collected from Thompson Lake, Livingston Co. in 1995 (ID 95038), and 2005 (ID 2005107).

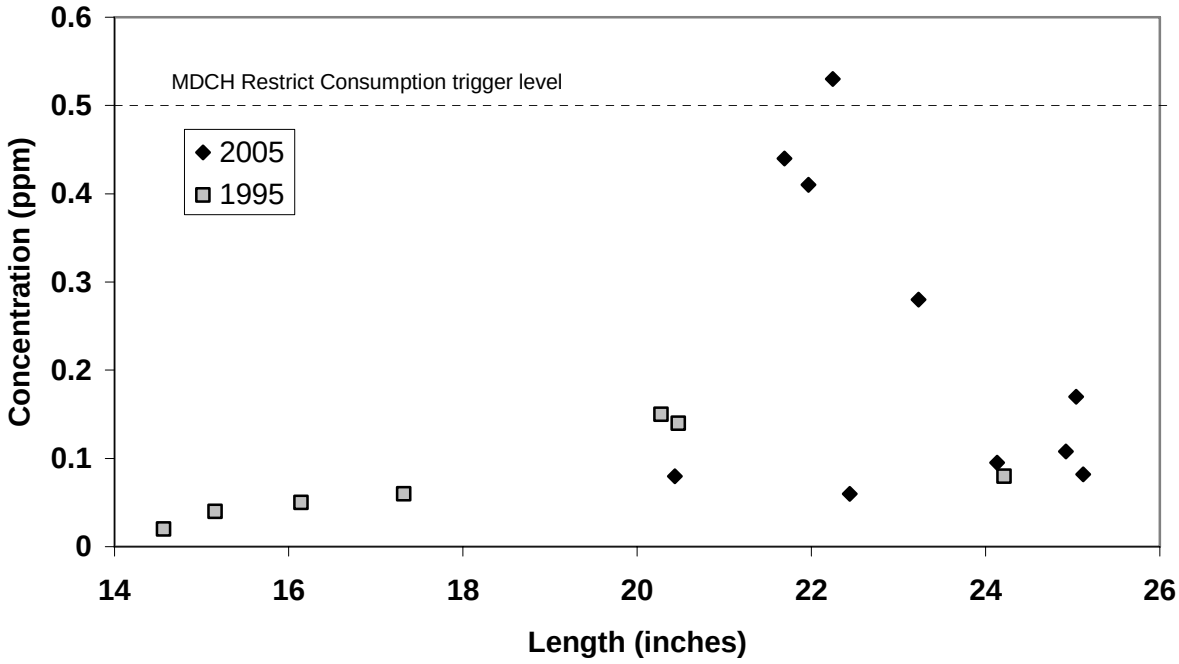


Figure 23. Total length versus mercury concentration in carp collected from Thompson Lake, Livingston Co. in 1995 (ID 95038), and 2005 (ID 2005107).

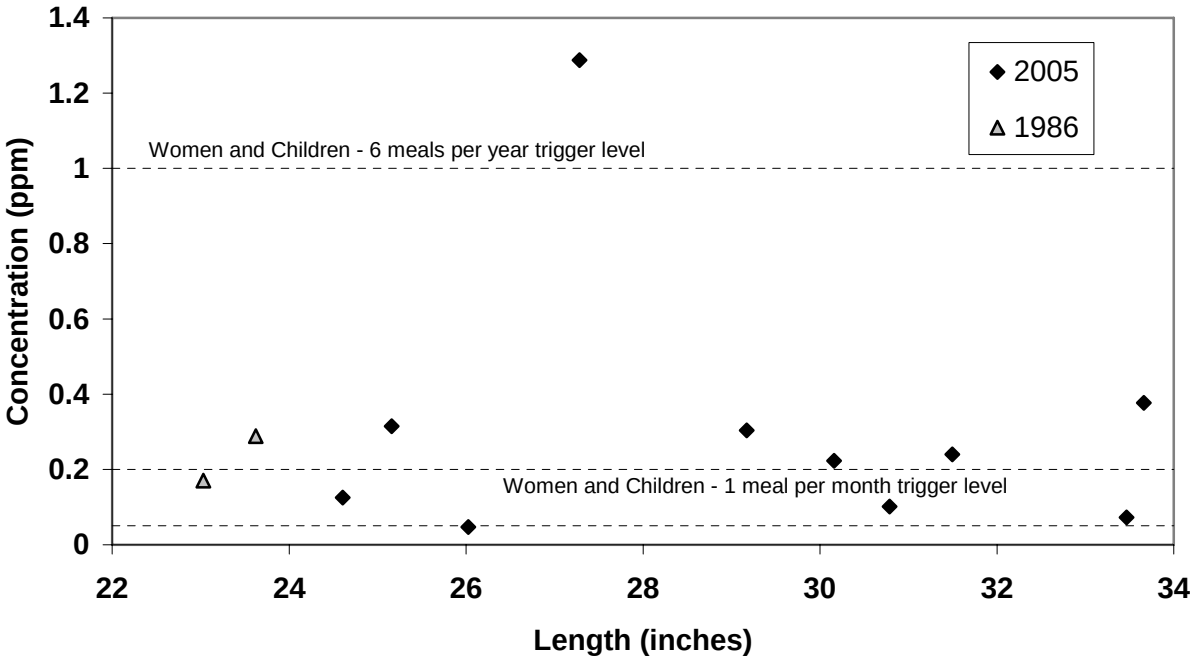


Figure 24. Total length versus total PCB concentration in northern pike collected from Thompson Lake, Livingston Co. in 1986 (ID 86010) and 2005 (ID 2005107).

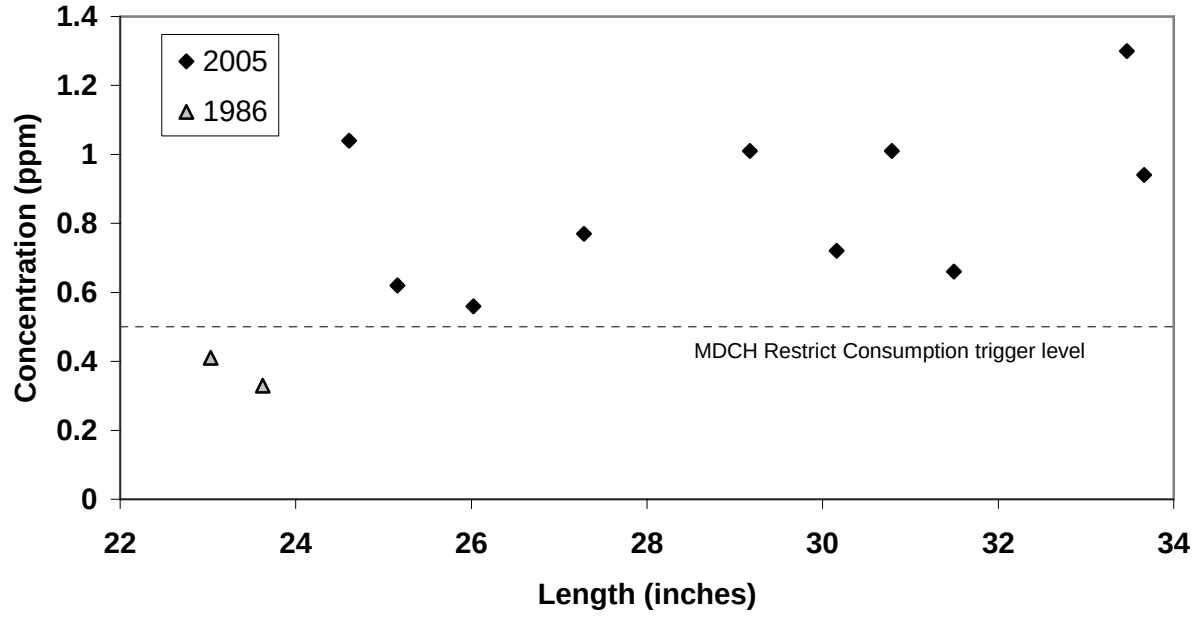


Figure 25. Total length versus mercury concentration in northern pike collected from Thompson Lake, Livingston Co. in 1986 (ID 86010) and 2005 (ID 2005107).

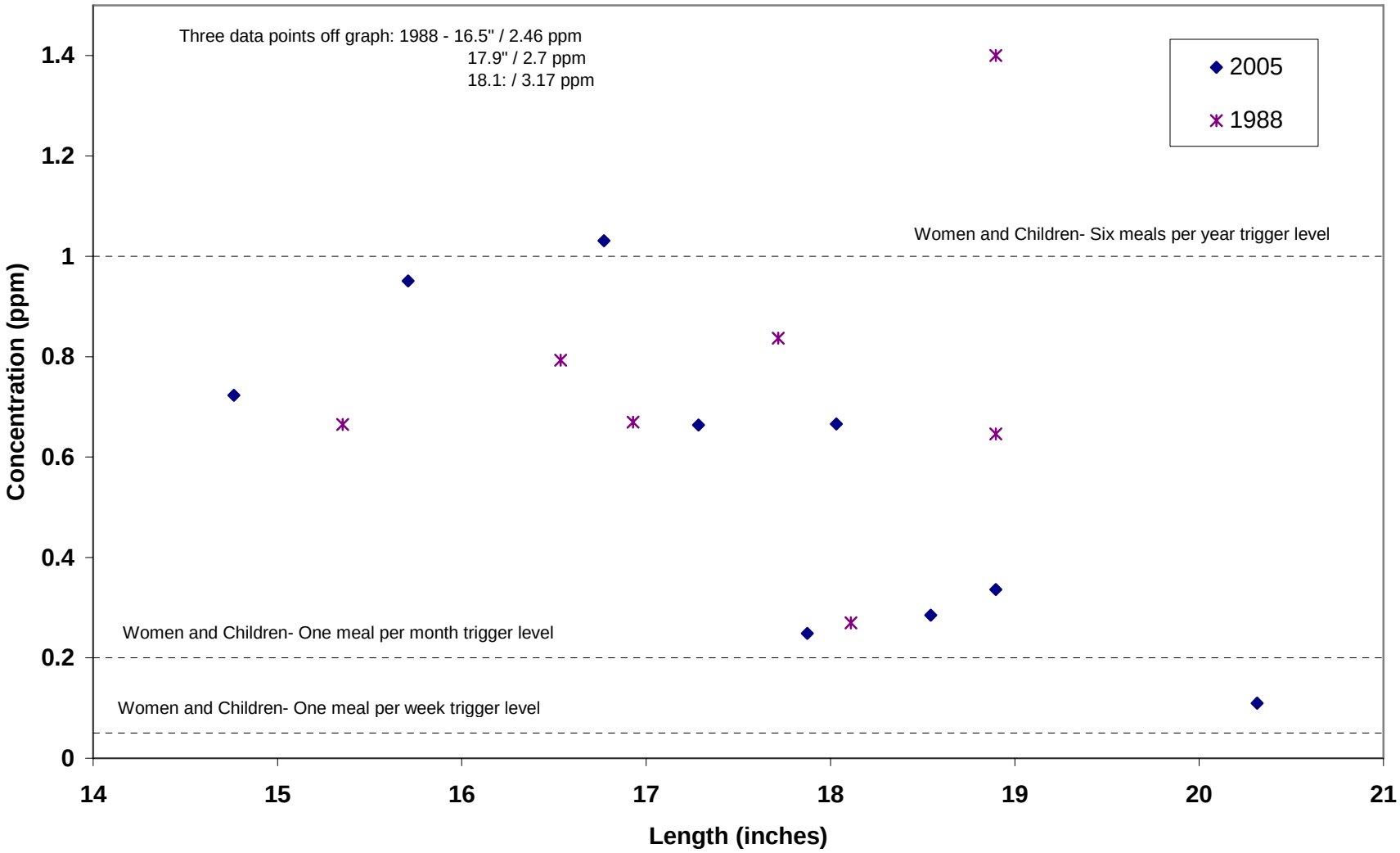


Figure 26. Total length versus total PCB concentration in longnose sucker collected from Lake Michigan, Green Bay in 1988 (ID 88057) and 2005 (ID2005050).

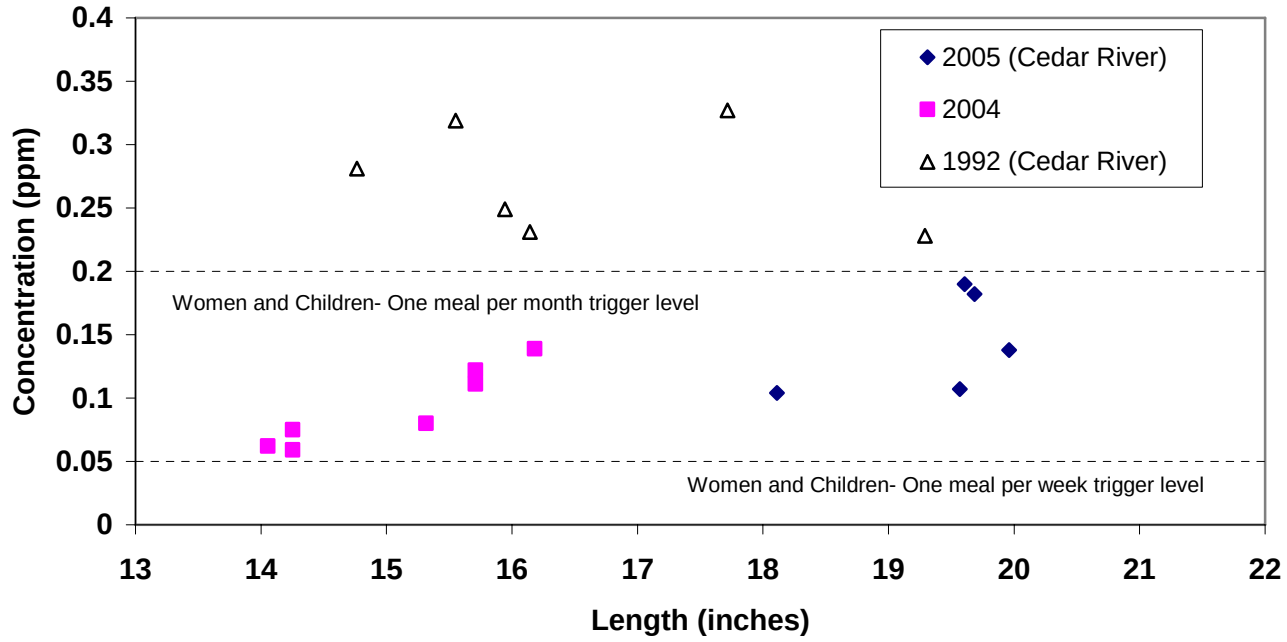


Figure 27. **Total length versus total PCB concentration in smallmouth bass collected from Lake Michigan, Green Bay, in 1992 (ID 92022), 2004 (ID2004054), and 2005 (ID 2005050).**

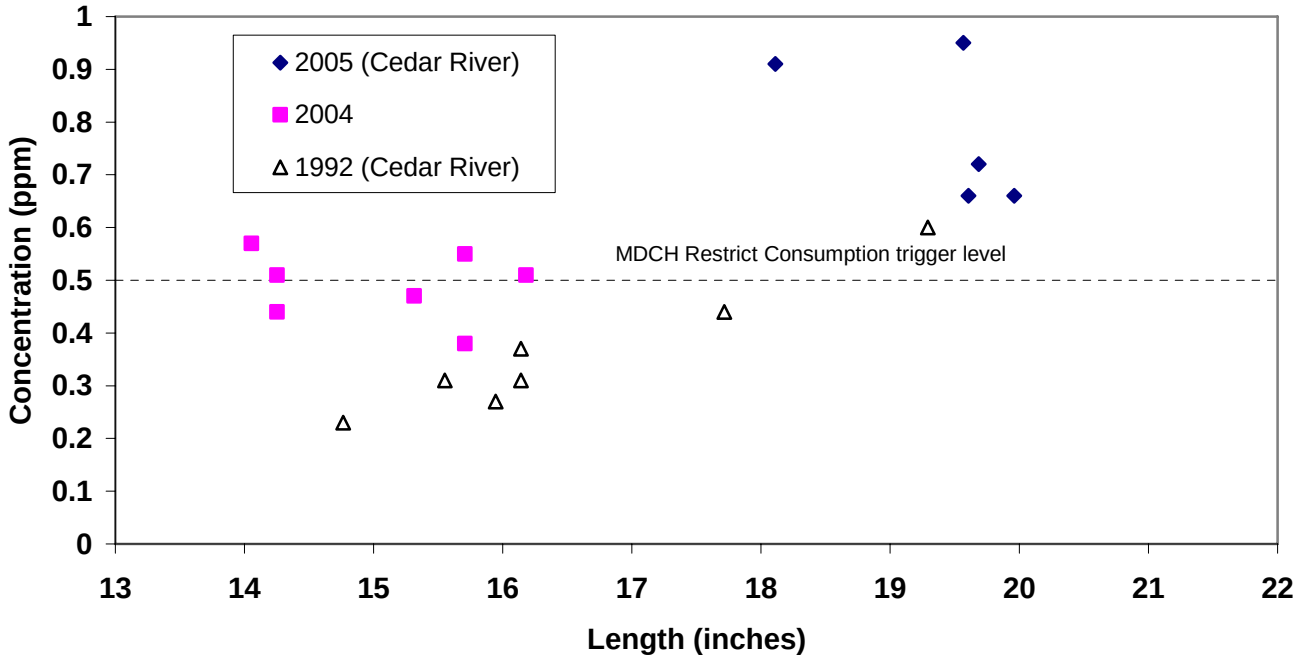


Figure 28. **Total length versus total mercury concentration in smallmouth bass collected from Lake Michigan, Green Bay, in 1992 (ID 92022), 2004 (ID2004054), and 2005 (ID 2005050).**

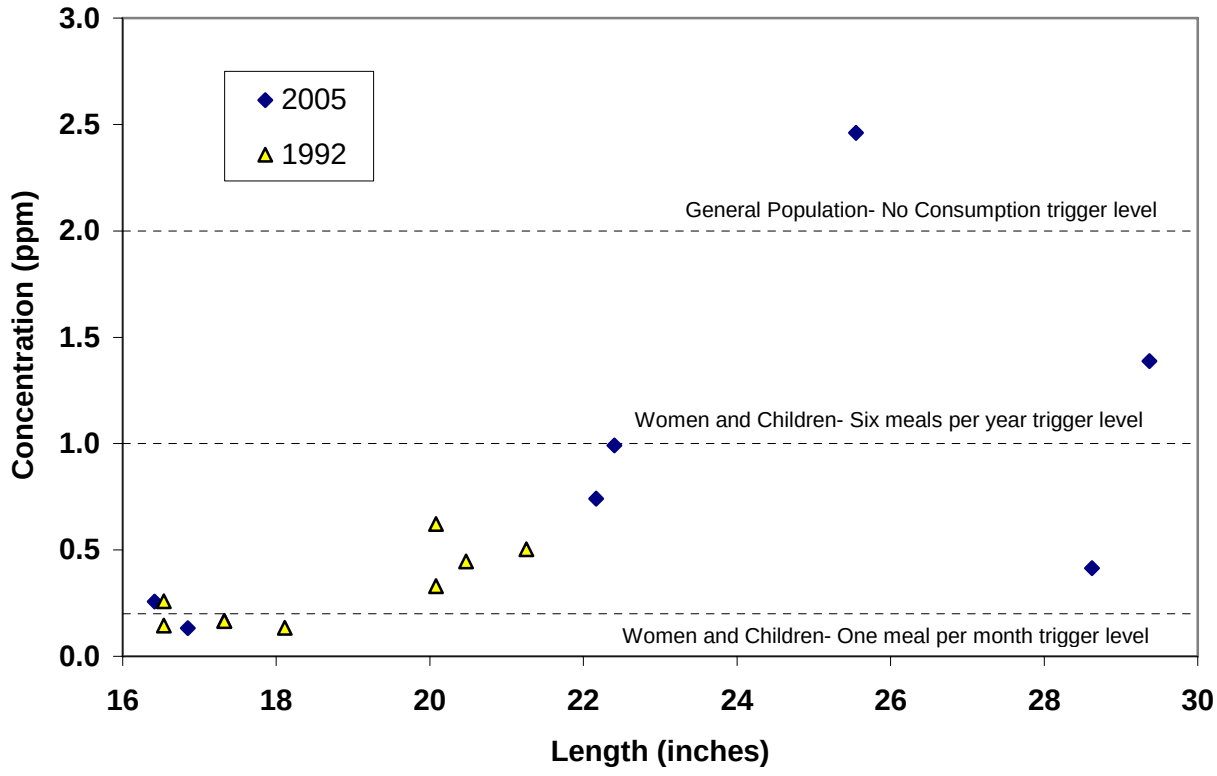


Figure 29. Total length versus total PCB concentration in walleye collected from Lake Michigan, Green Bay in 1992 (ID 92022) and 2005 (ID2005050).

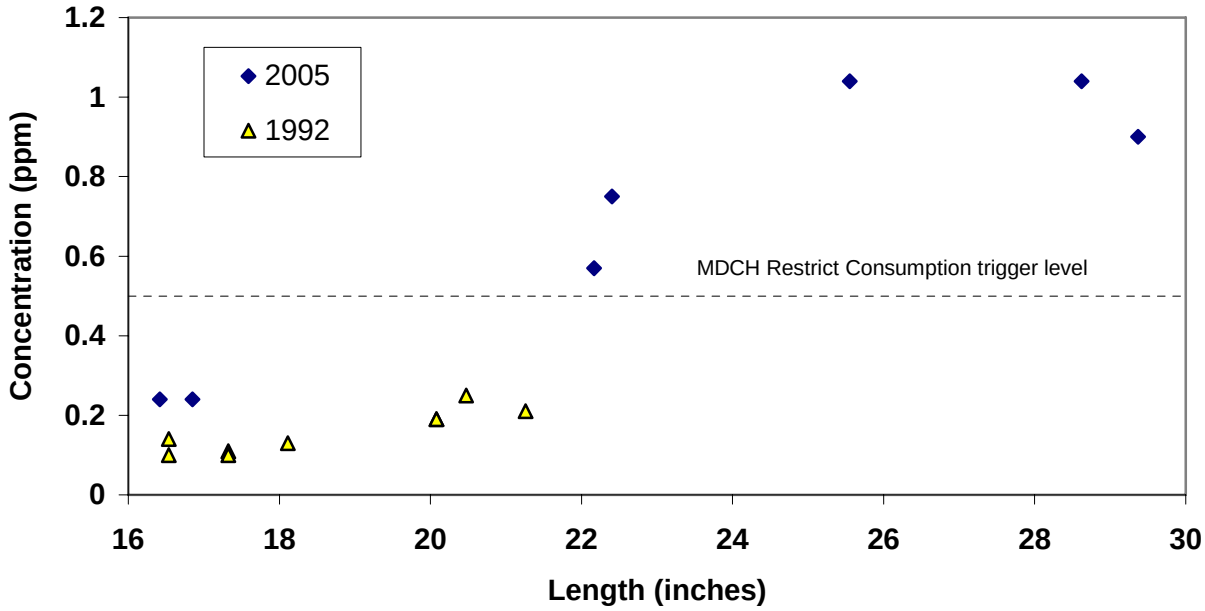


Figure 30. Total length versus total mercury concentration in walleye collected from Lake Michigan, Green Bay in 1992 (ID 92022) and 2005 (ID2005050).

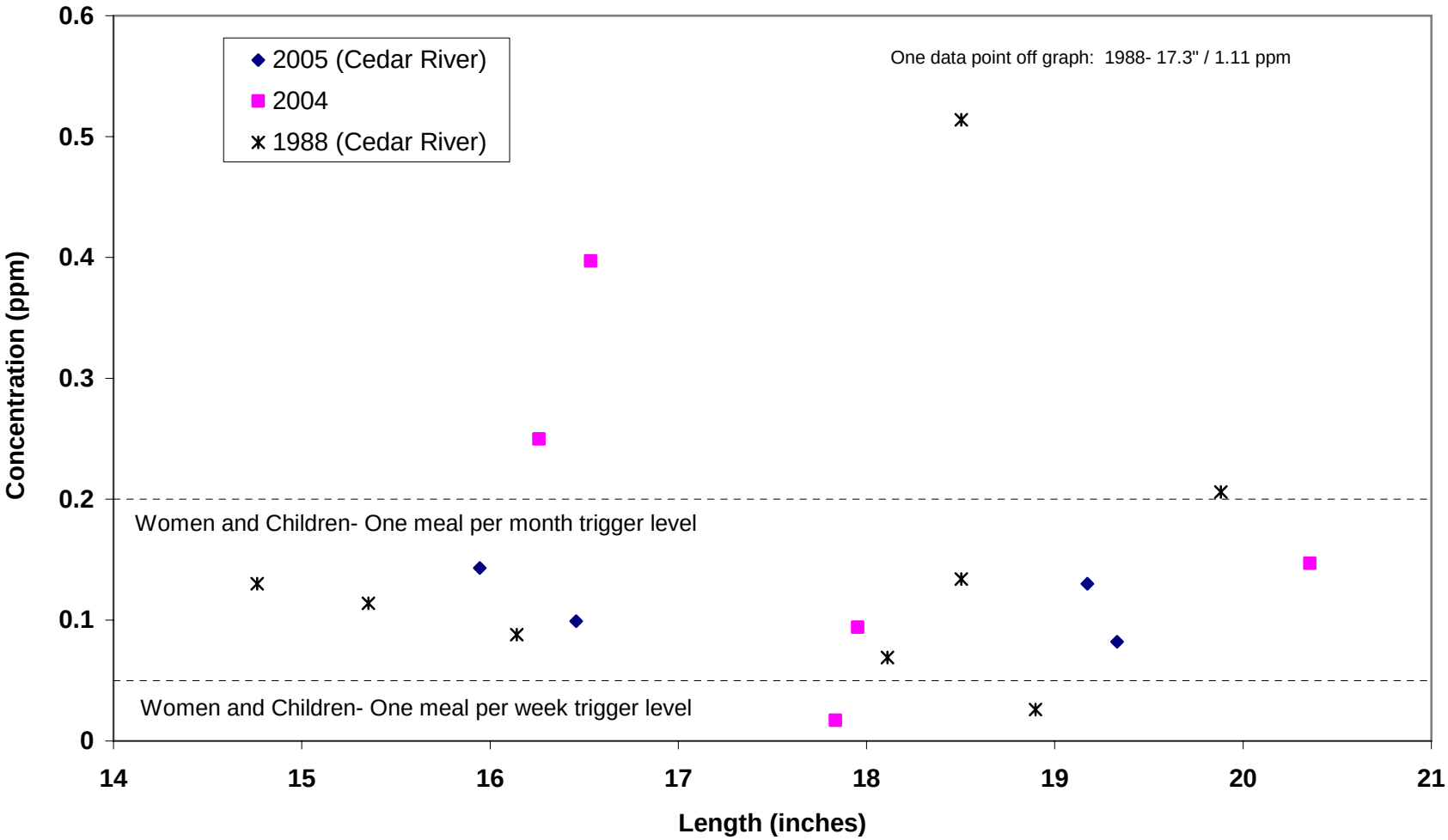


Figure 31. Total length versus total PCB concentration in white sucker collected from Lake Michigan, Green Bay, in 1988 (ID 88057), 2004 (ID 2004054), and 2005 (ID2005050).

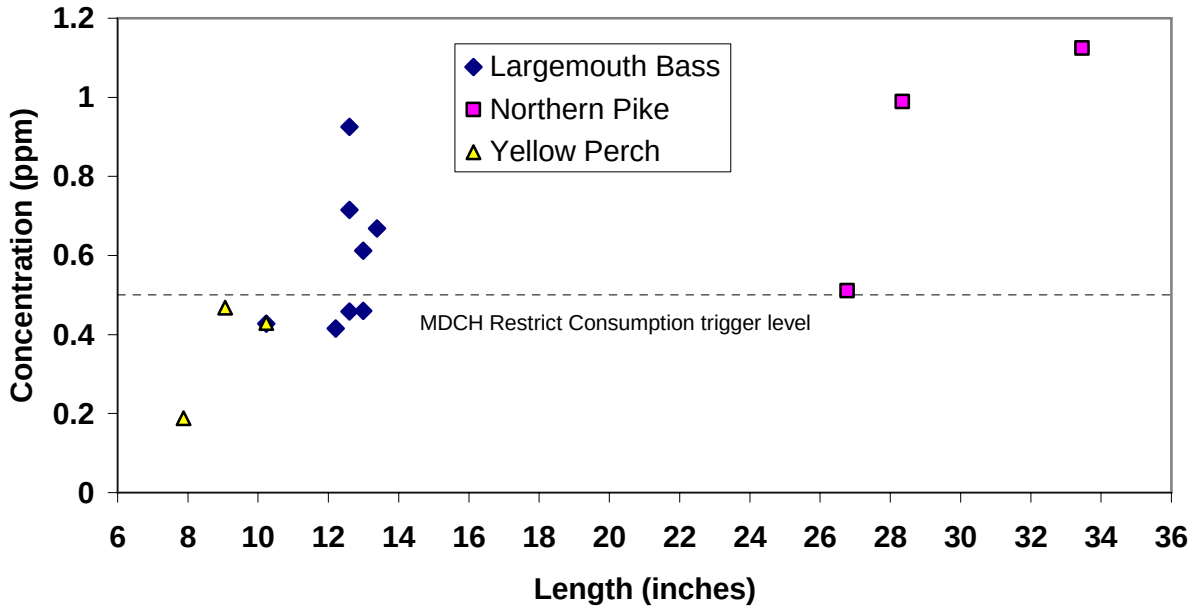


Figure 32. Total length versus mercury concentration in largemouth bass, northern pike, and yellow perch collected from Aligan Lake, Baraga Co. in 2005 (ID 2005108).

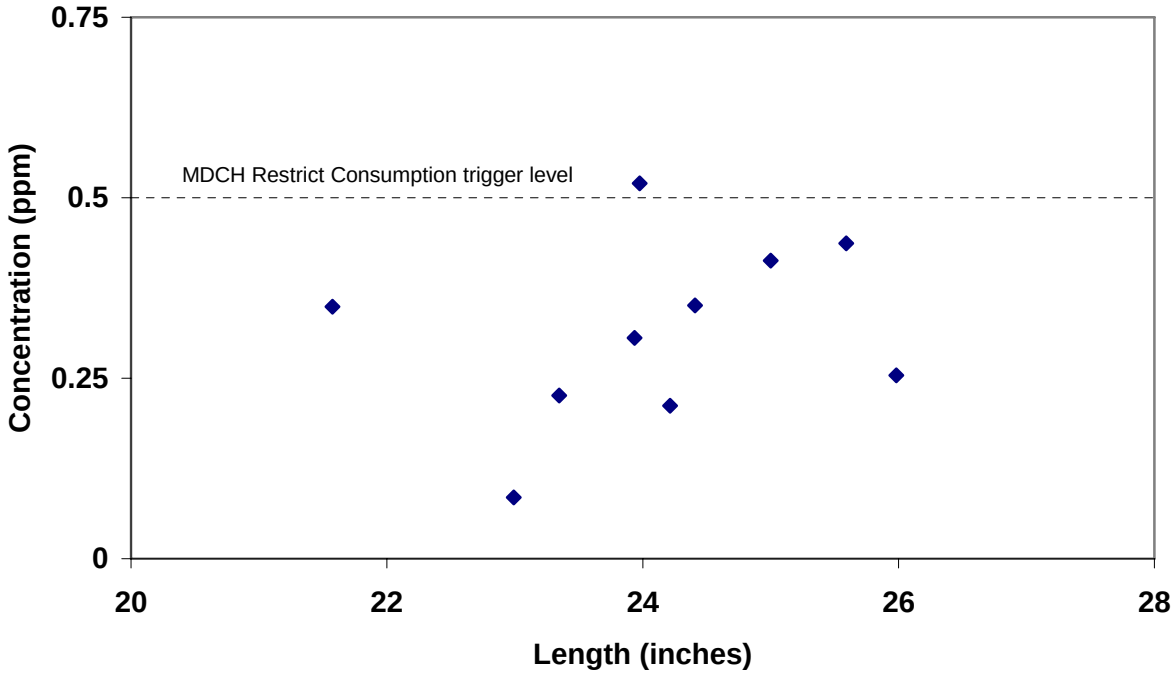


Figure 33. Total length versus mercury concentration in northern pike collected from Antoine Lake, Dickinson County, in 2005 (ID 2005001).

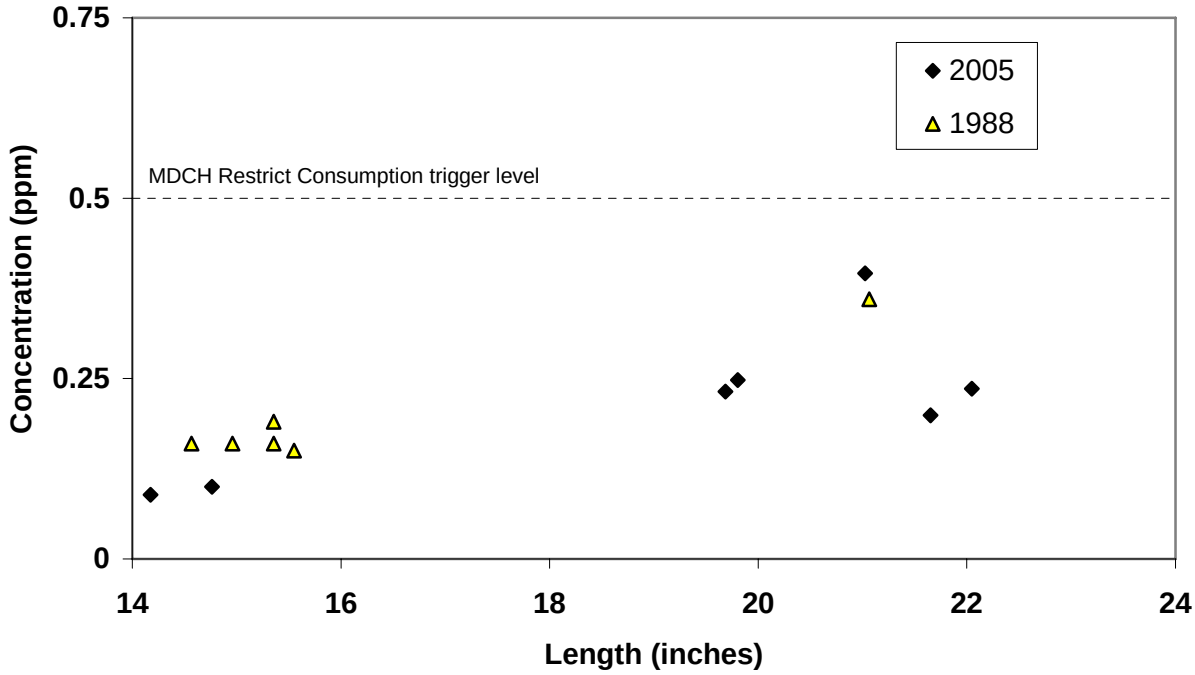


Figure 34. Total length versus mercury concentration in walleye collected from Antoine Lake, Dickinson County, in 2005 (ID 2005001).

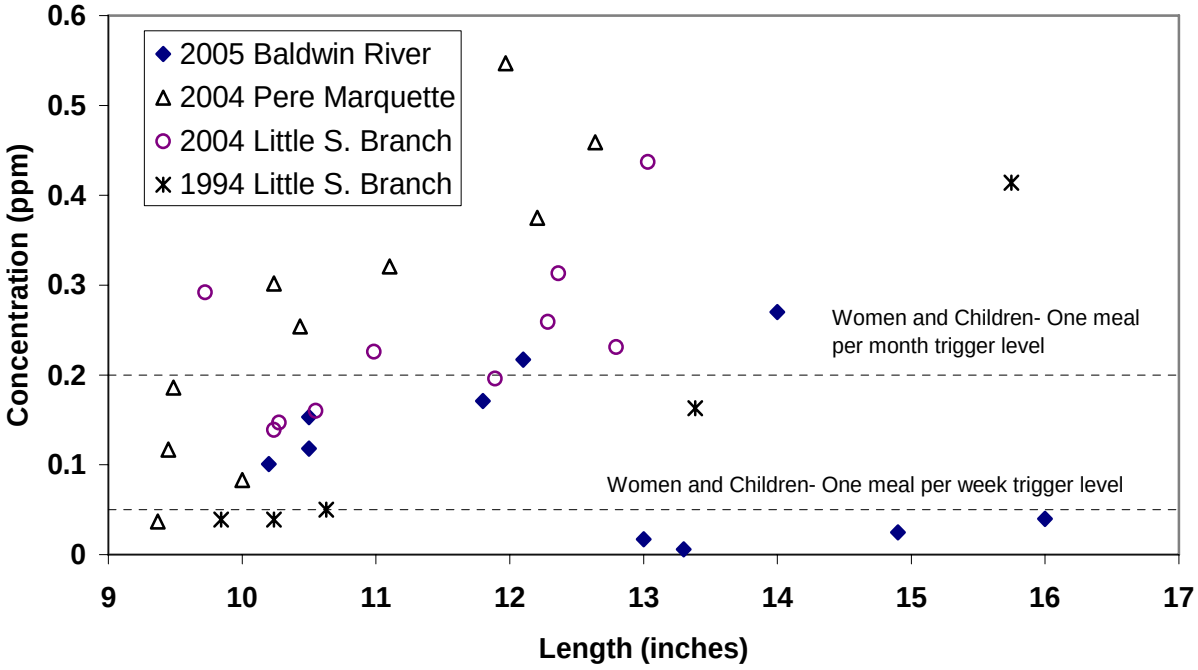


Figure 35. Total length versus total PCB concentration in brown trout collected from the Baldwin River in 2005 (ID 2005004), the L. S. Br. Pere Marquette in 1994 and 2004 (IDs 94032 and 2004082), and the Pere Marquette in 2004 (ID 2004081).

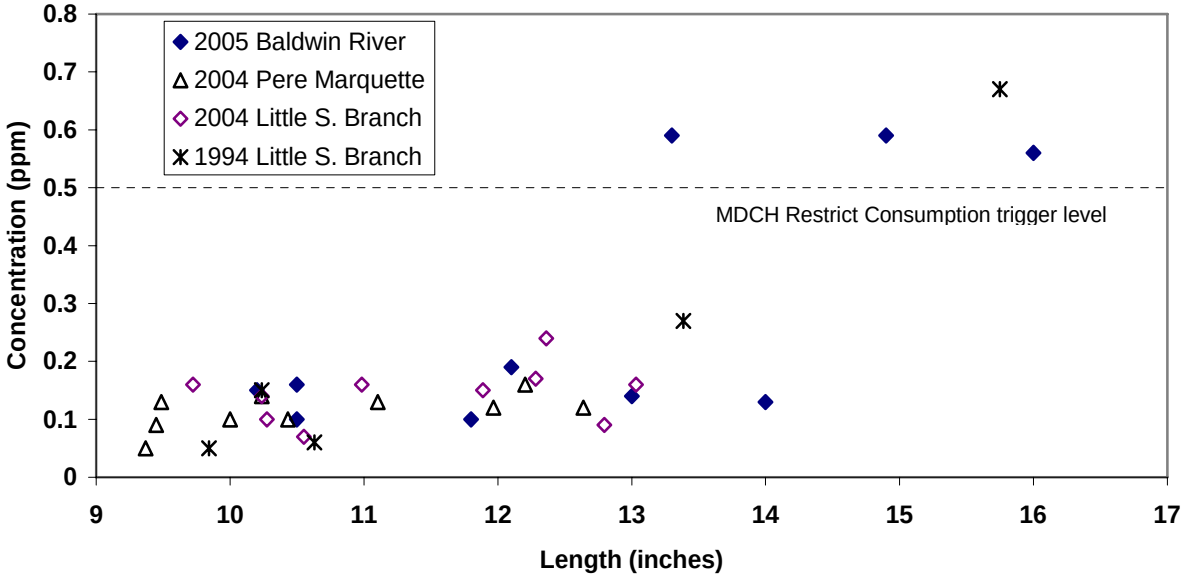


Figure 36. Total length versus mercury concentration in brown trout collected from the Baldwin River in 2005 (ID 2005004), the L. S. Br. Pere Marquette in 1994 and 2004 (IDs 94032 and 2004082), and the Pere Marquette in 2004 (ID 2004081).

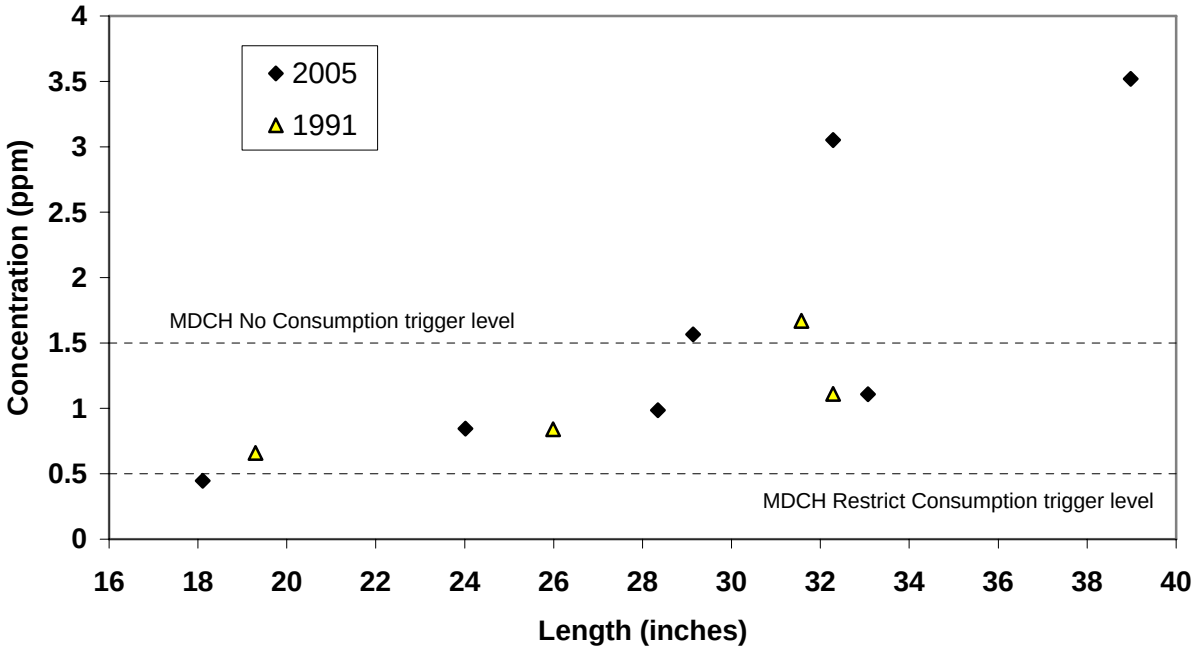


Figure 37. Total length versus mercury concentration in northern pike collected from Craig Lake, Baraga County, in 1991 (ID 91028) and 2005 (ID 2005015).

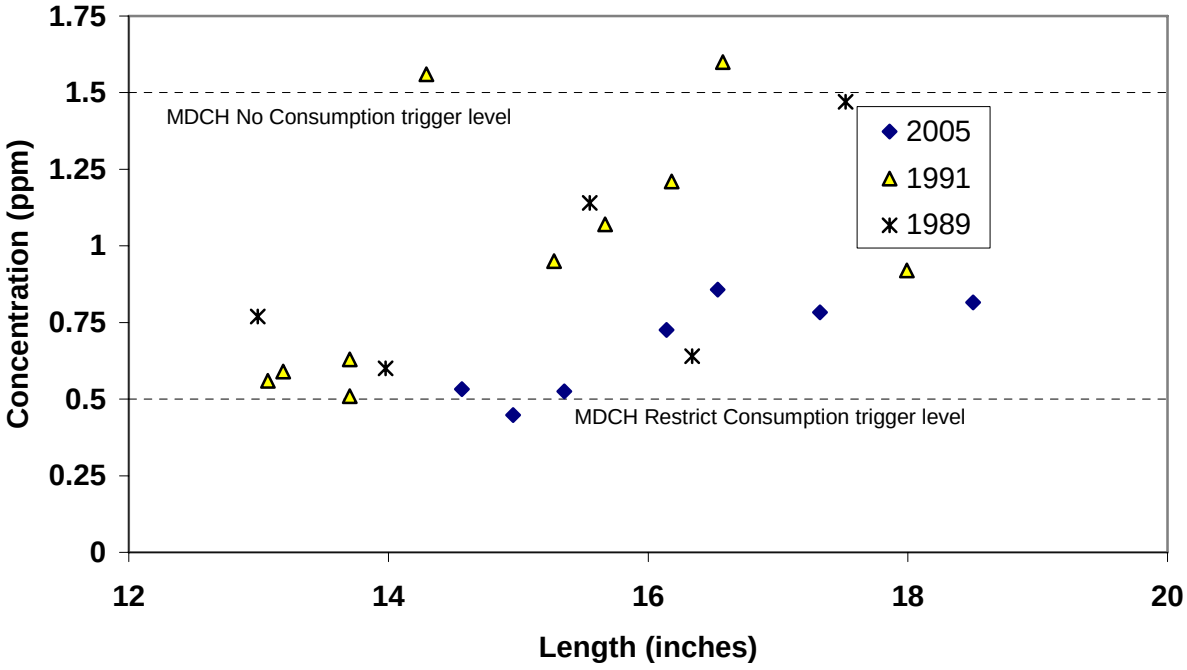


Figure 38. Total length versus mercury concentration in walleye collected from Craig Lake, Baraga County, in 1989, 1991, and 2005 (IDs 89074, 91028, & 2005015).

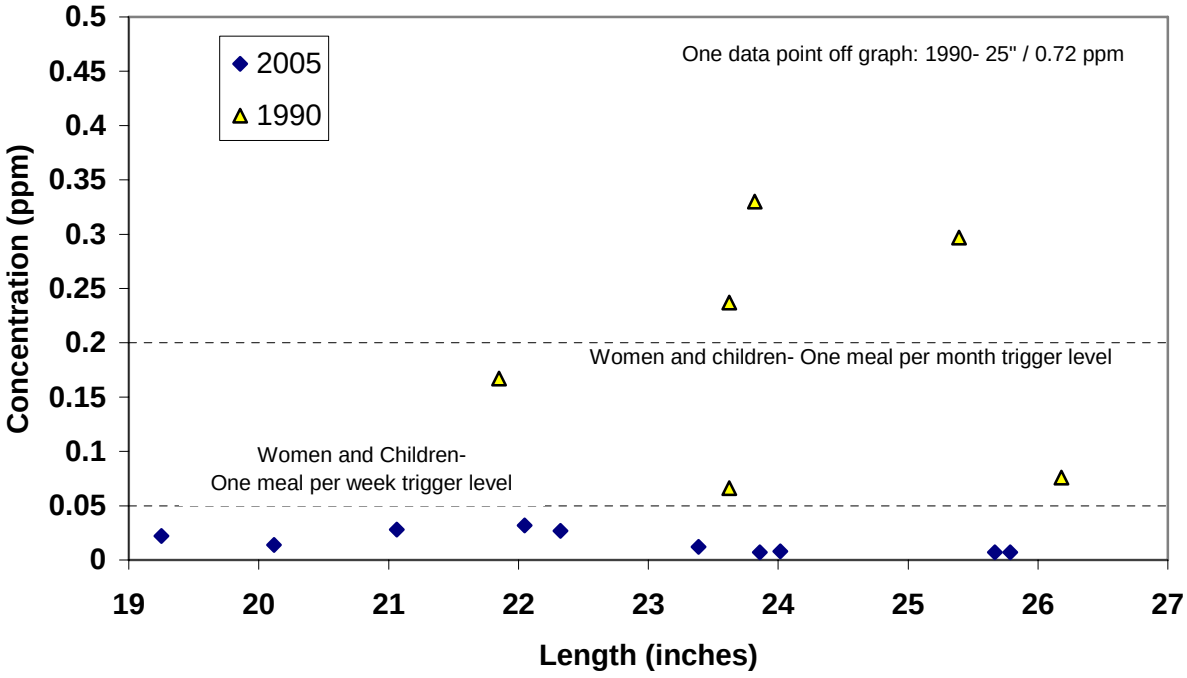


Figure 39. Total length versus total PCB concentration in carp collected from the Fawn River at Stubey Rd, St. Joseph Co. in 1990 (ID 90016) and 2005 (ID2005019).

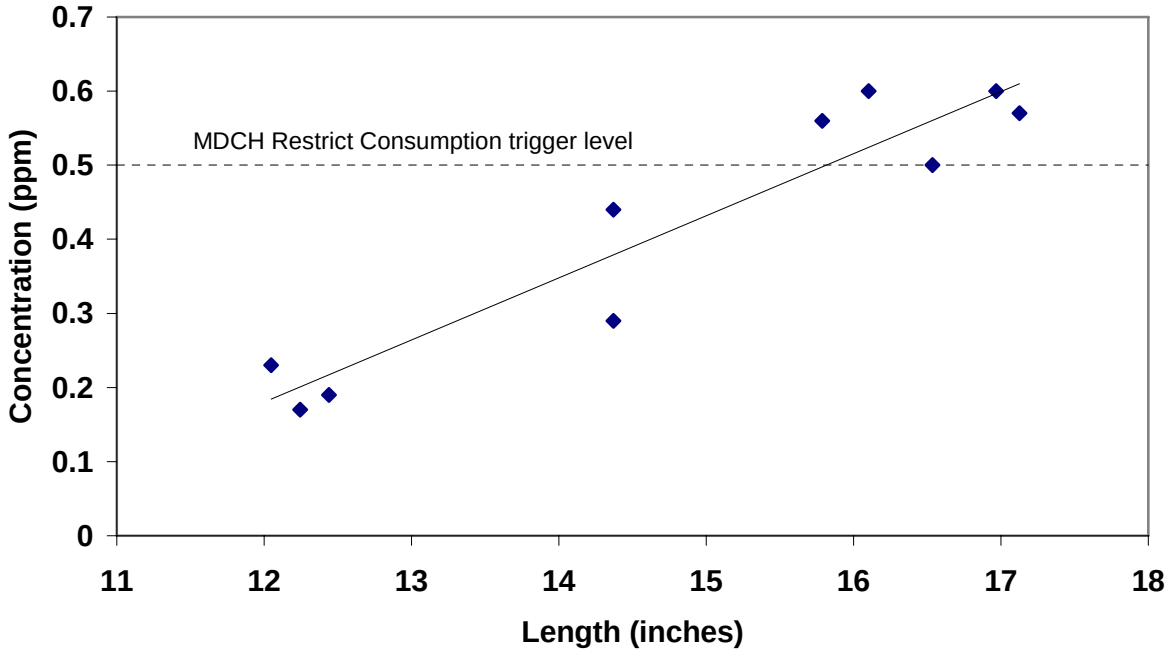


Figure 40. Total length versus total mercury concentration in smallmouth bass collected from the Fawn River at Stubey Rd, St. Joseph Co. in 2005 (ID2005019).

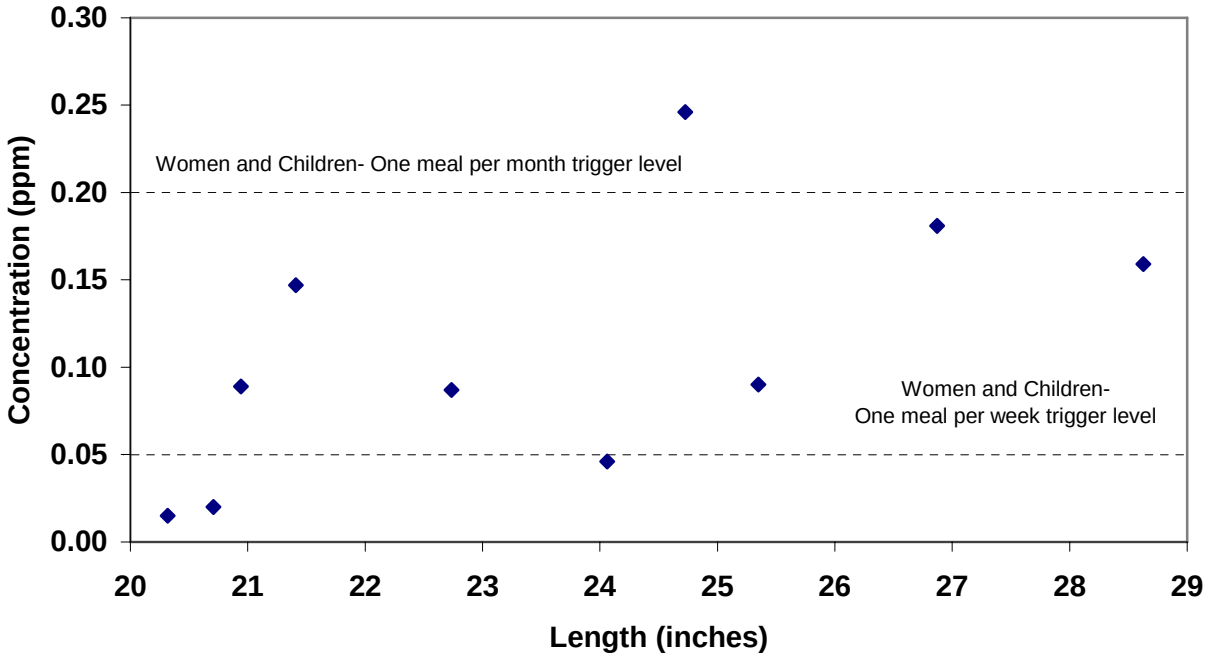


Figure 41. Total length versus total PCB concentration in carp collected from Fremont Lake, Newaygo Co. in 2005 (ID2005021).

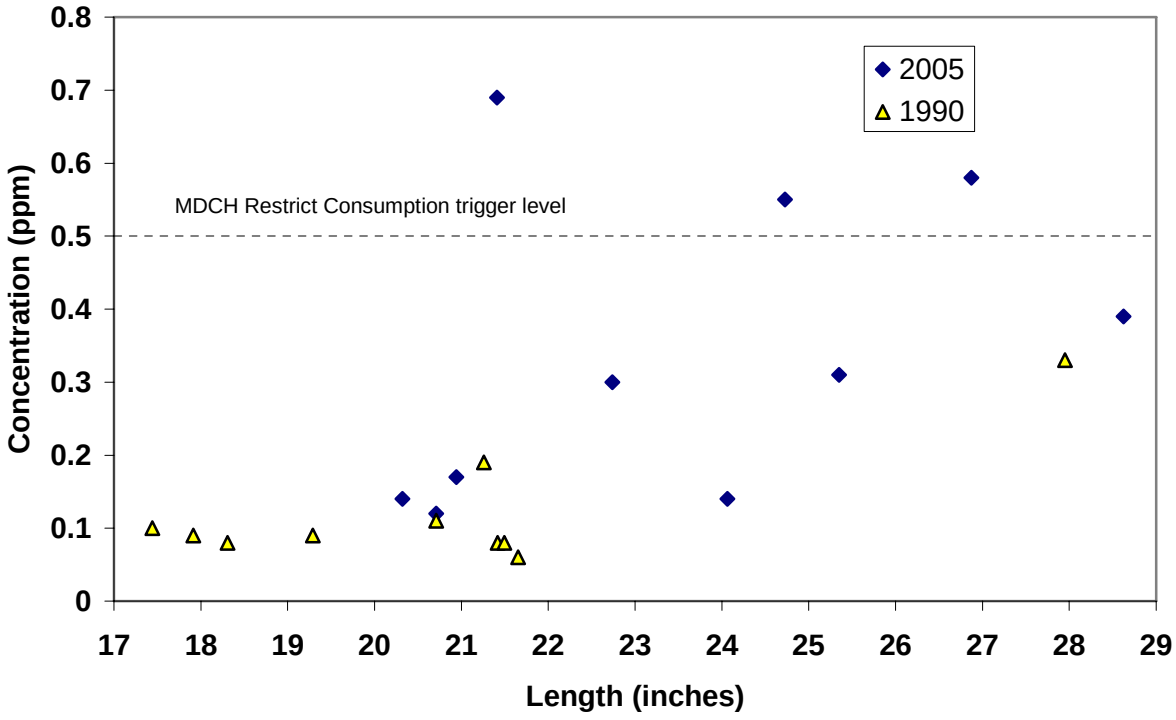


Figure 42. Total length versus total mercury concentration in carp collected from Fremont Lake, Newaygo Co. in 1990 (ID 90062) and 2005 (ID2005021).

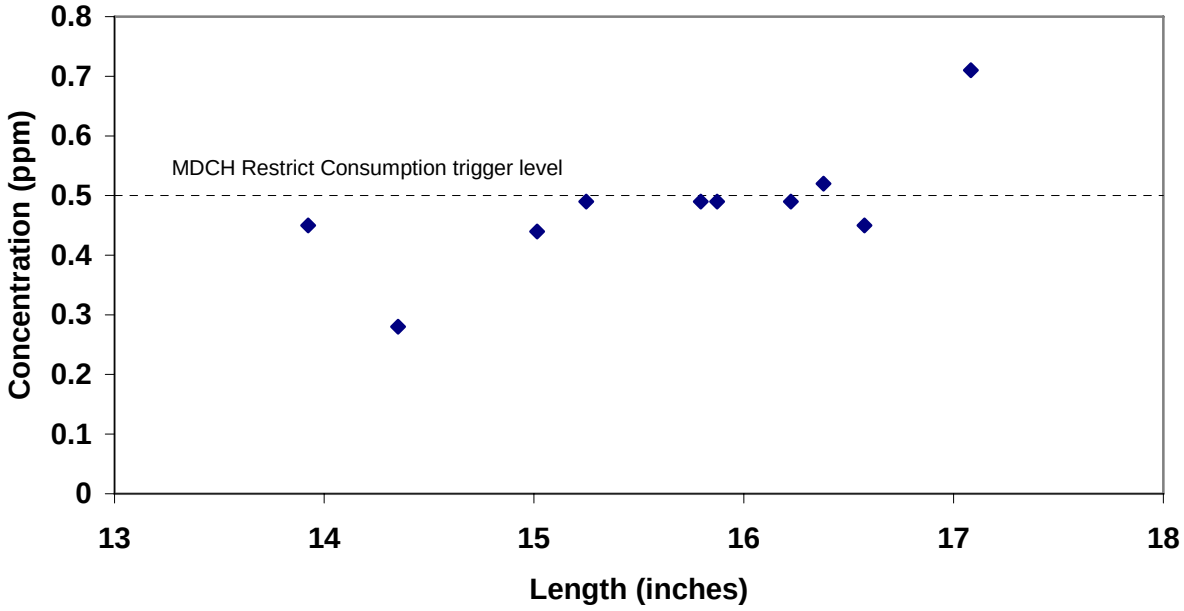


Figure 43. Total length versus total mercury concentration in largemouth bass collected from Fremont Lake, Newaygo Co. in 2005 (ID2005021).

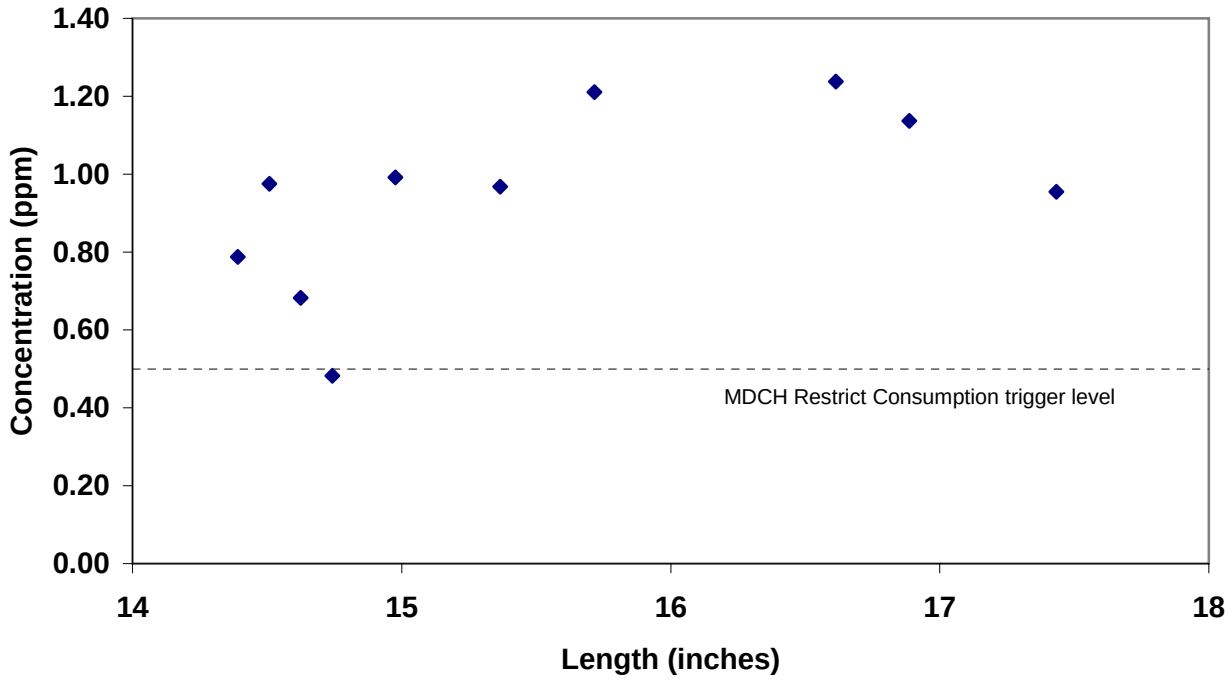


Figure 44. Total length versus total mercury concentration in largemouth bass collected from Hanbury Lake, Dickinson Co. in 2005 (ID2005028).

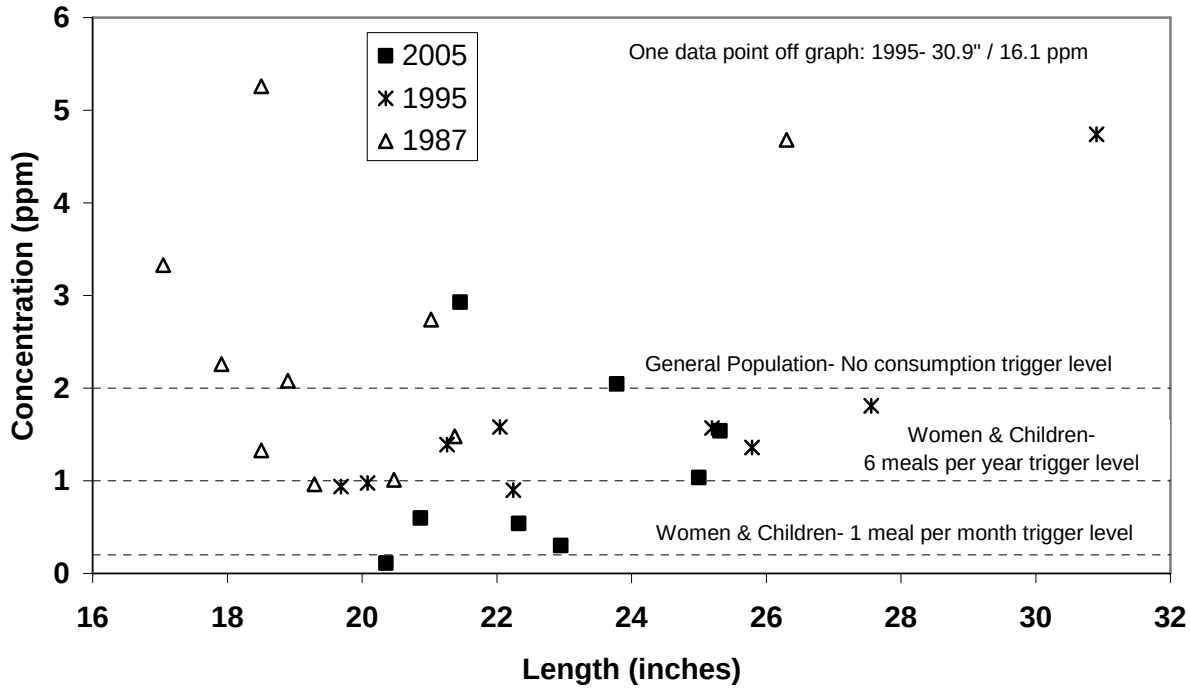


Figure 45. Total length versus total PCB concentration in carp collected from Lake Macatawa, Ottawa Co. in 1987 (ID 87061), 1995 (ID 95006), and 2005 (ID2005047).

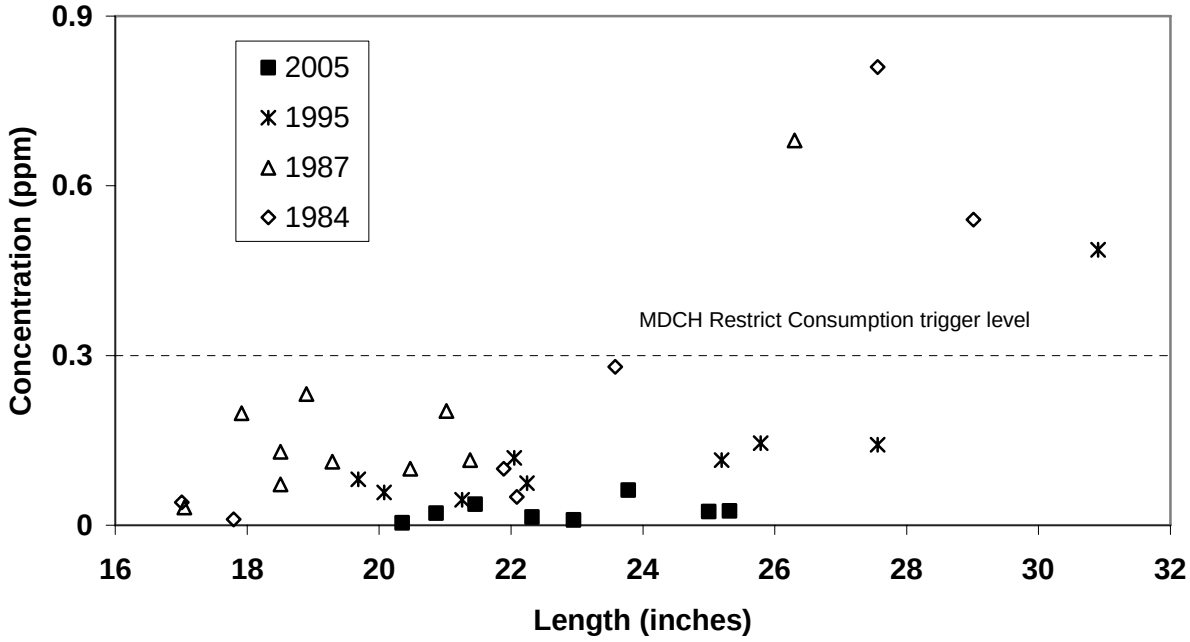


Figure 46. Total length versus total chlordane concentration in carp collected from Lake Macatawa, Ottawa Co. in 1984 (ID 84002), 1987 (ID 87061), 1995 (ID 95006), and 2005 (ID2005047).

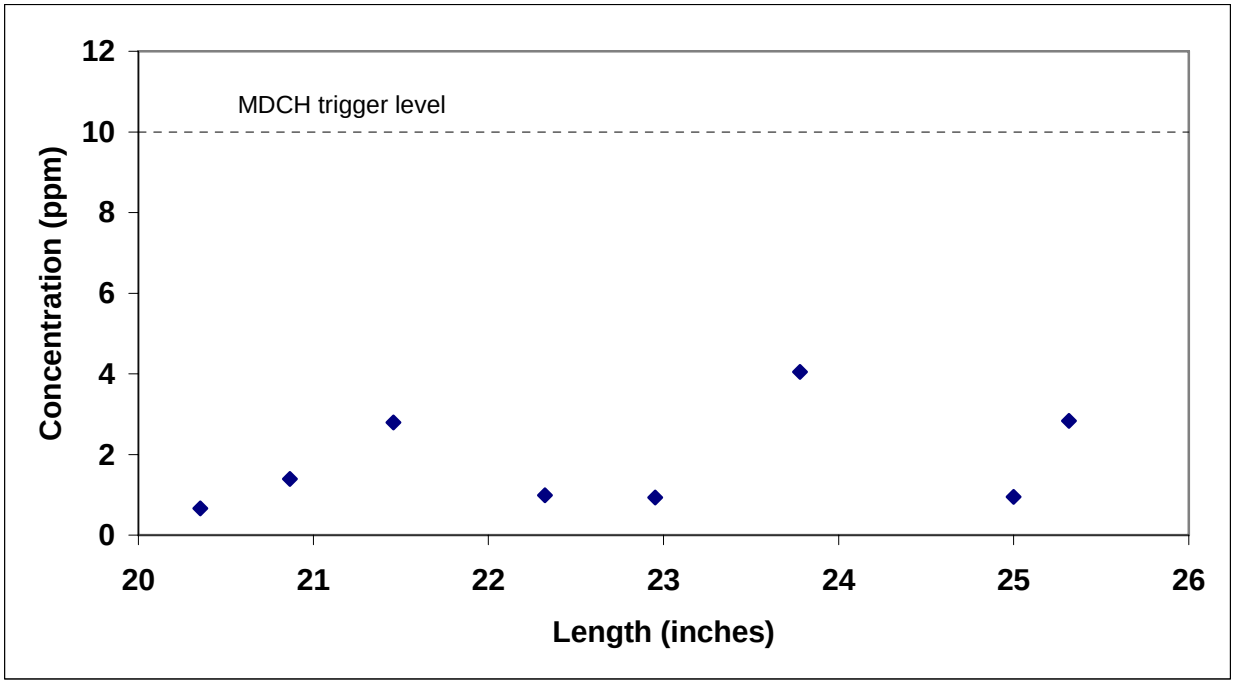


Figure 47. Total length versus dioxin TEQ concentration in carp collected from Lake Macatawa, Ottawa Co. in 2005 (ID2005047).

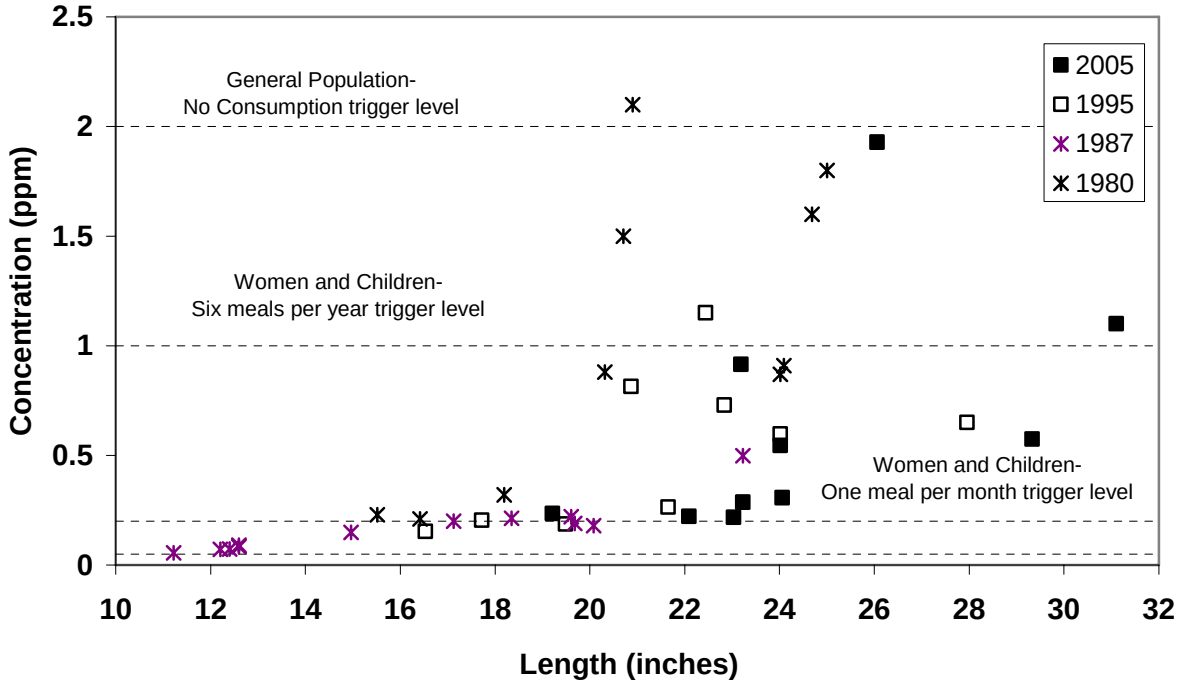


Figure 48. Total length versus total PCB concentration in walleye collected from Lake Macatawa, Ottawa Co. in 1980 (ID 80002), 1987 (ID 87061), 1995 (ID 95006), and 2005 (ID2005047).

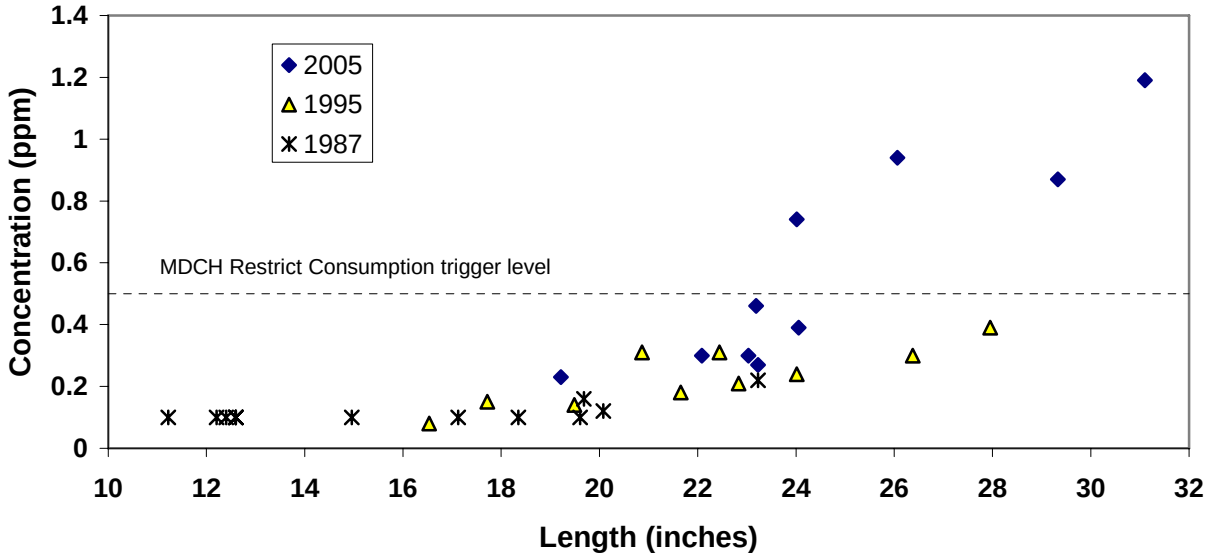


Figure 49. Total length versus total mercury concentration in walleye collected from Lake Macatawa, Ottawa Co. in 1987 (ID 87061), 1995 (ID 95006), and 2005 (ID2005047).

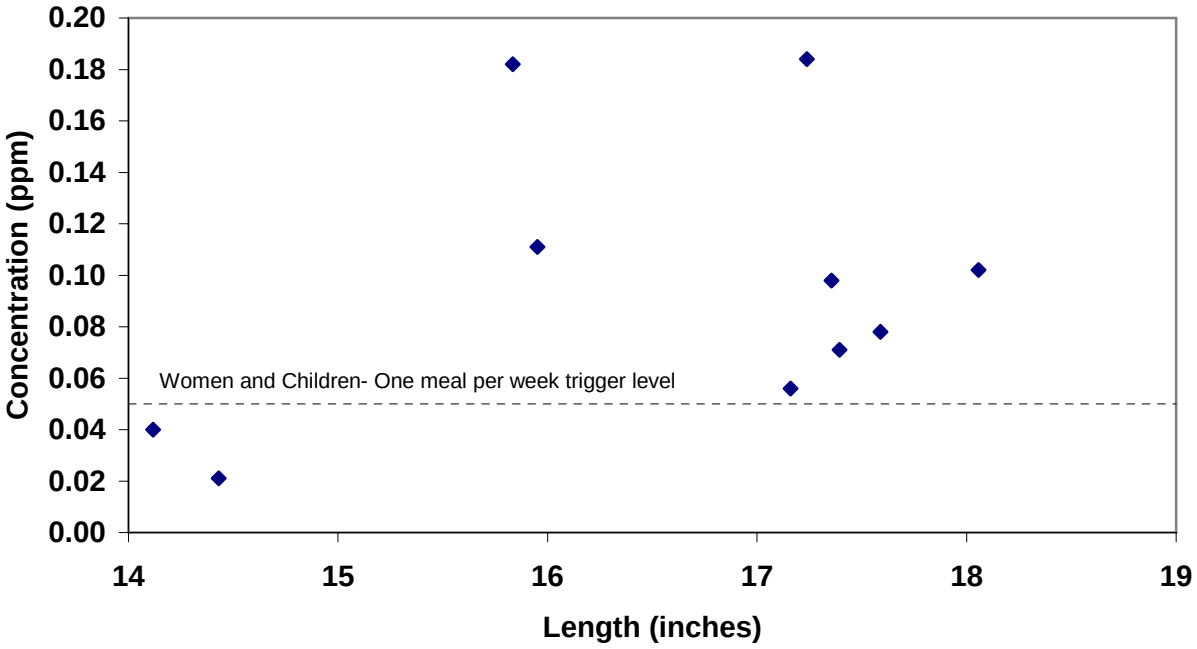


Figure 50. Total length versus total PCB concentration in redhorse sucker collected from the Pigeon River, St. Joseph Co. in 2005 (ID2005076).

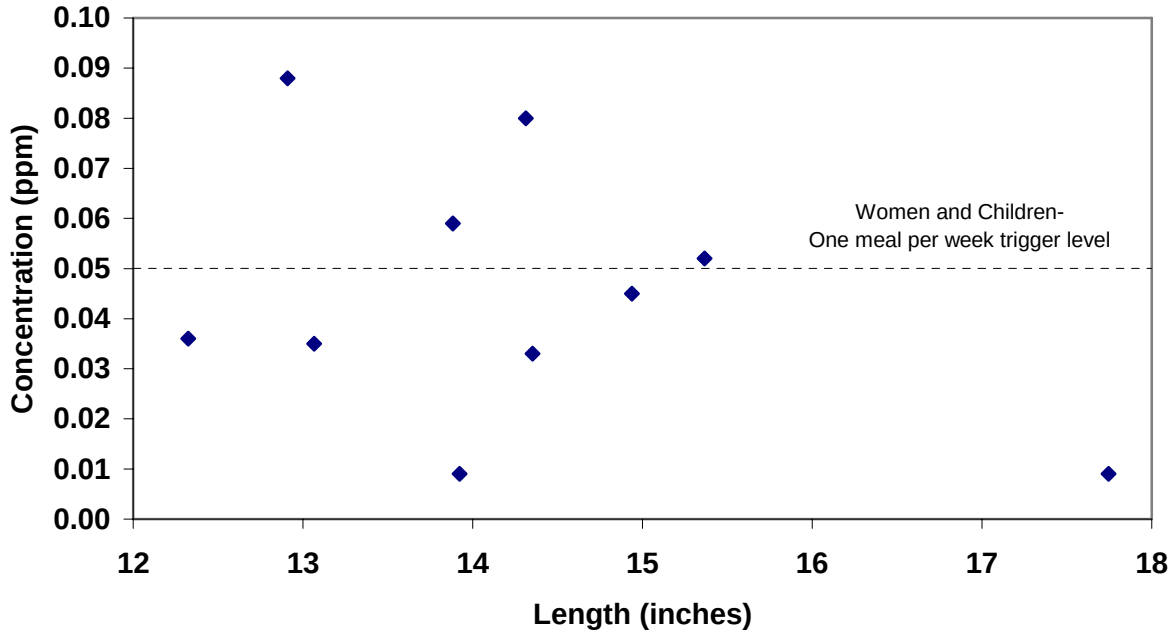


Figure 51. Total length versus total PCB concentration in smallmouth bass collected from the Pigeon River, St. Joseph Co. in 2005 (ID2005076).

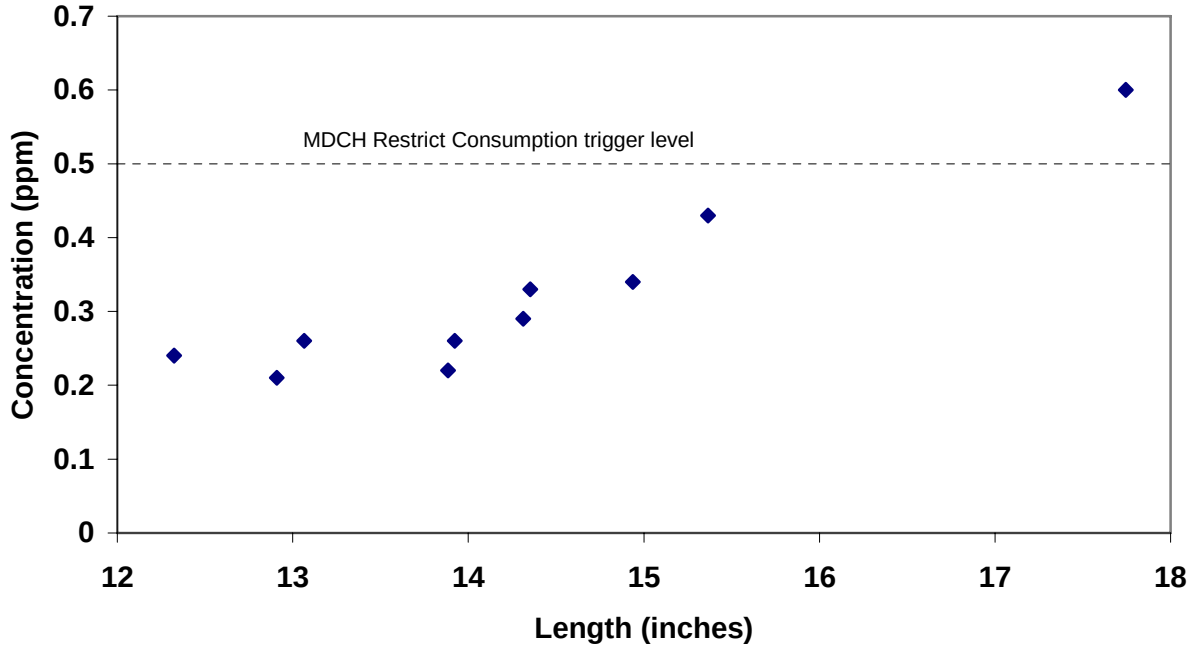


Figure 52. Total length versus total mercury concentration in smallmouth bass collected from the Pigeon River, St. Joseph Co. in 2005 (ID2005076).

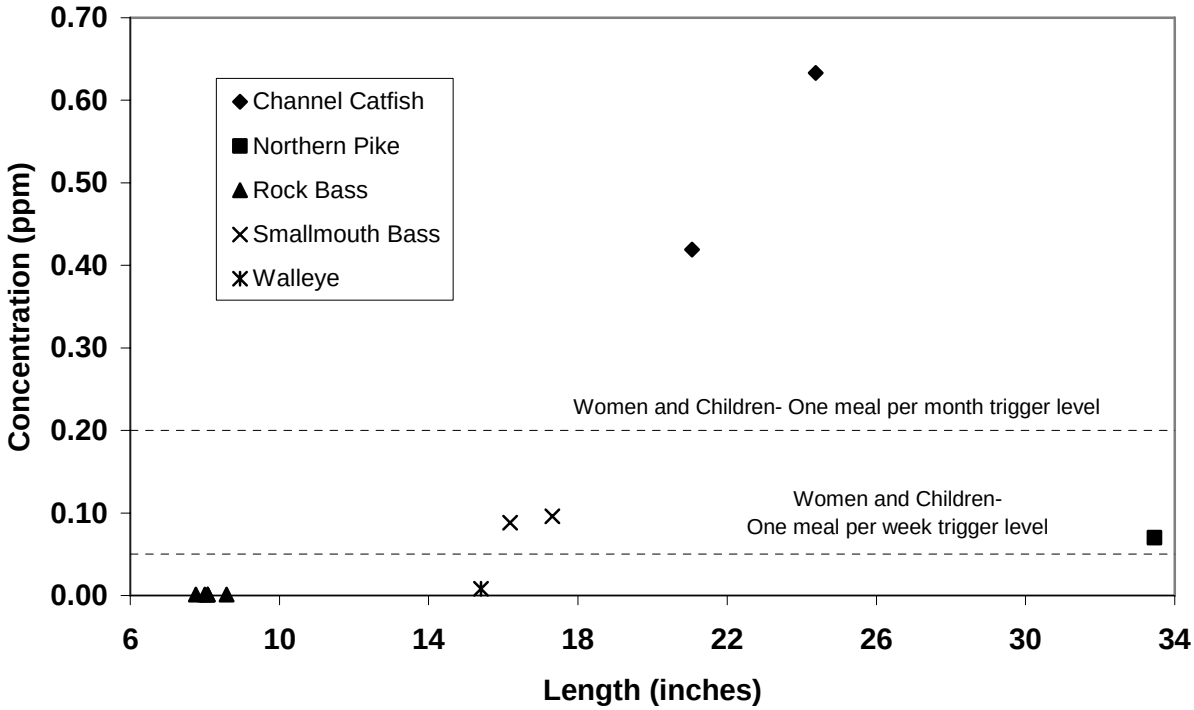


Figure 53. Total length versus total PCB concentration in channel catfish, northern pike, rock bass, smallmouth bass, and walleye collected from Platte Lake, Benzie Co. in 2004 (2004151) and 2005 (2005160).

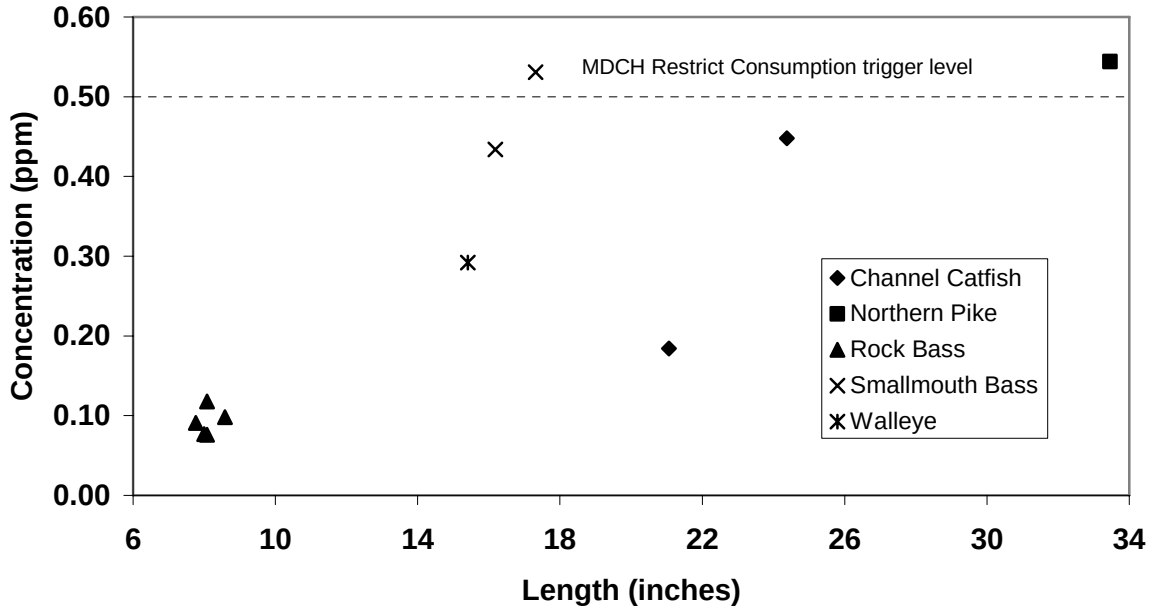


Figure 54. Total length versus total mercury concentration in channel catfish, northern pike, rock bass, smallmouth bass, and walleye collected from Platte Lake, Benzie Co. in 2004 (2004151) and 2005 (2005160).

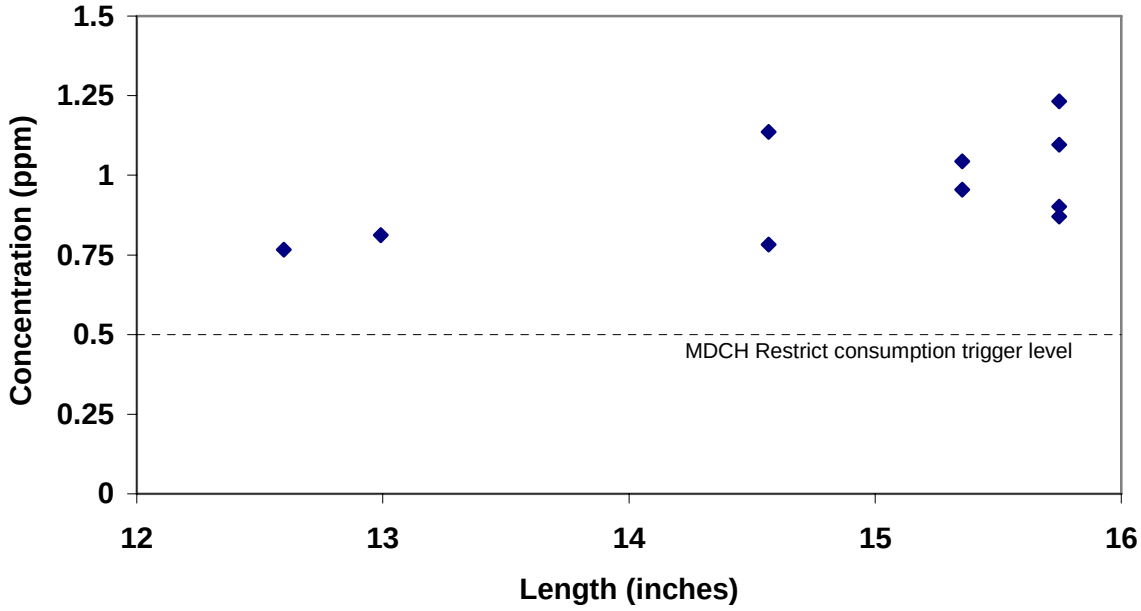


Figure 55. Total length versus mercury concentration in largemouth bass collected from Round Lake, Marquette Co. in 2005 (ID 2005081).

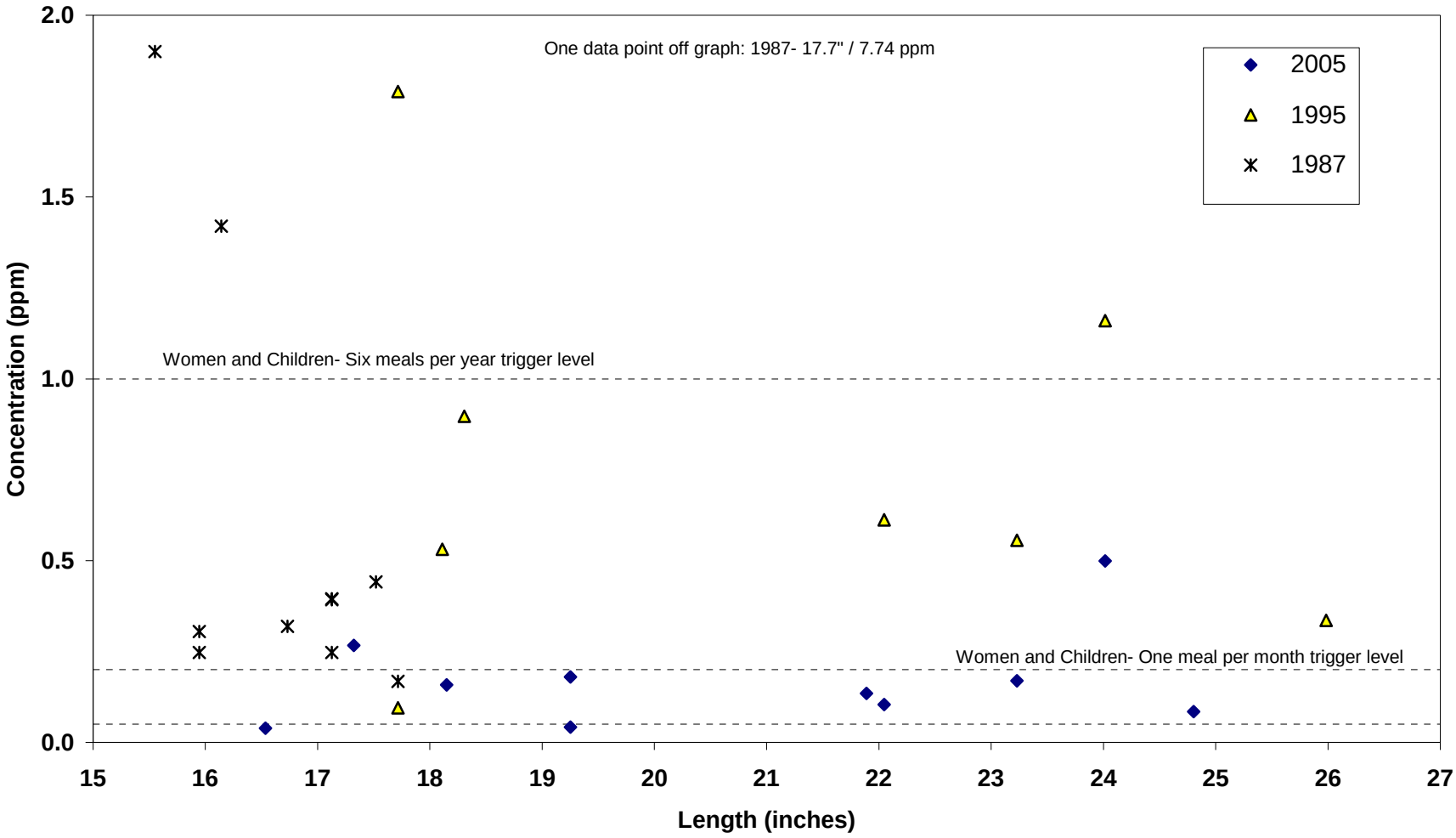


Figure 56. Total length versus total PCB concentration in carp collected from the St. Joseph River, Chapin Lake, Berrien Co. in 1987 (ID 87097), 1995 (ID95051.1), and 2005 (ID2005098).

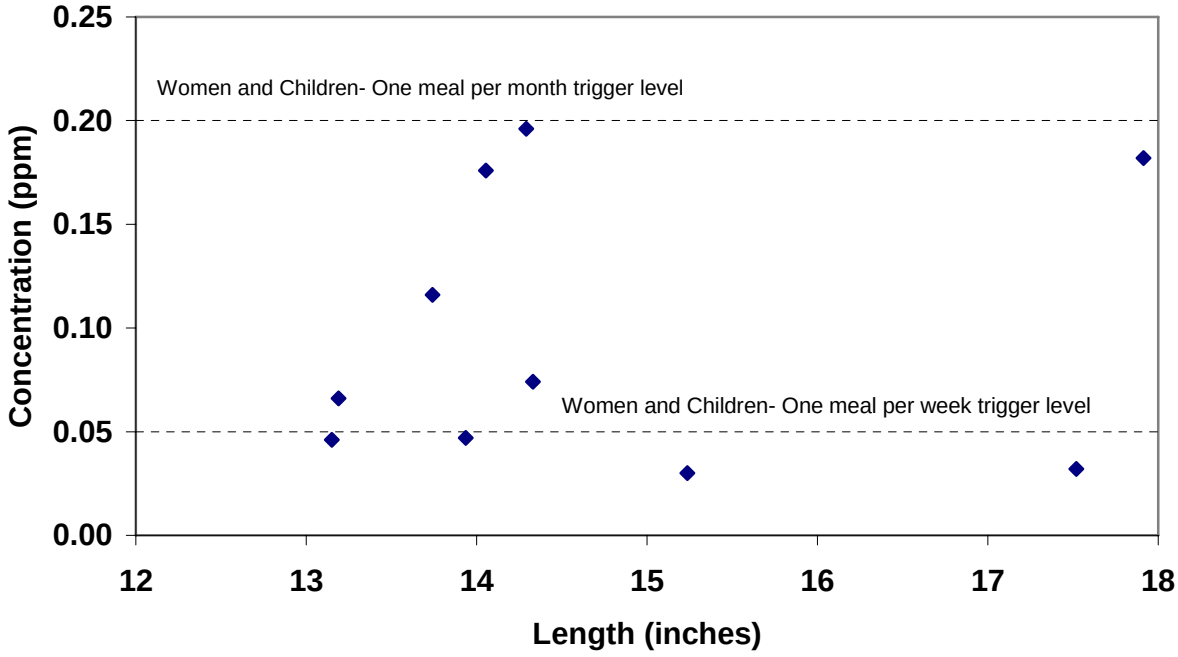


Figure 57. Total length versus total PCB concentration in largemouth bass collected from the St. Joseph River, Chapin Lake, Berrien Co. in 2005 (ID2005098).

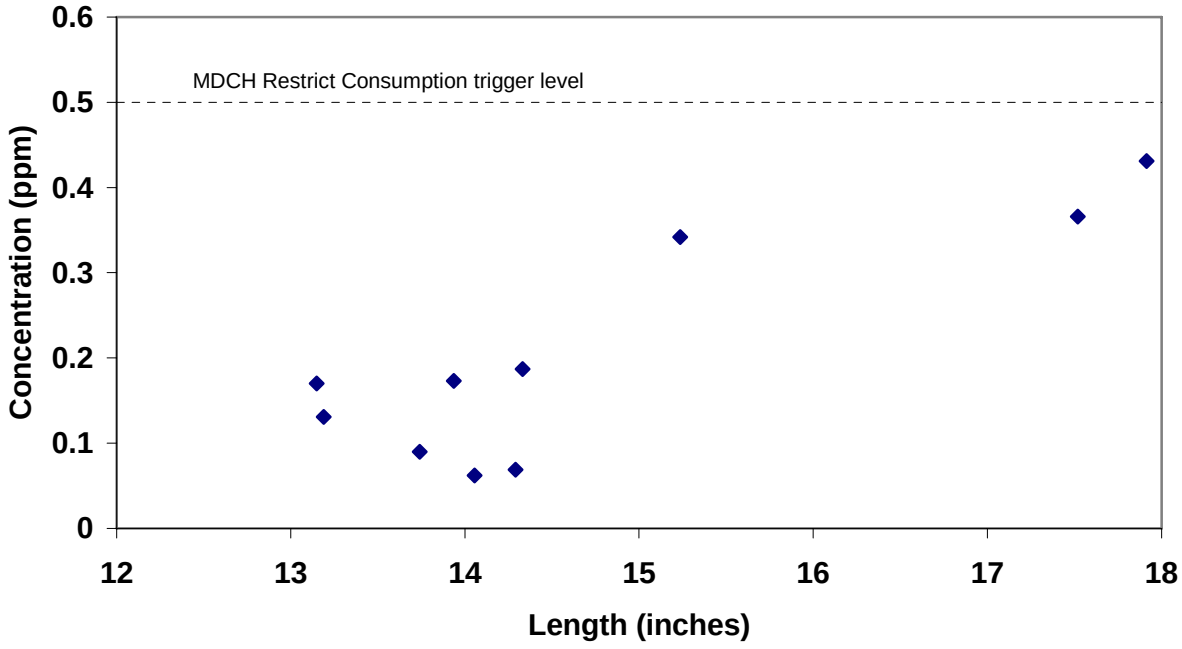


Figure 58. Total length versus mercury concentration in largemouth bass collected from the St. Joseph River, Chapin Lake, Berrien Co. in 2005 (ID2005098).

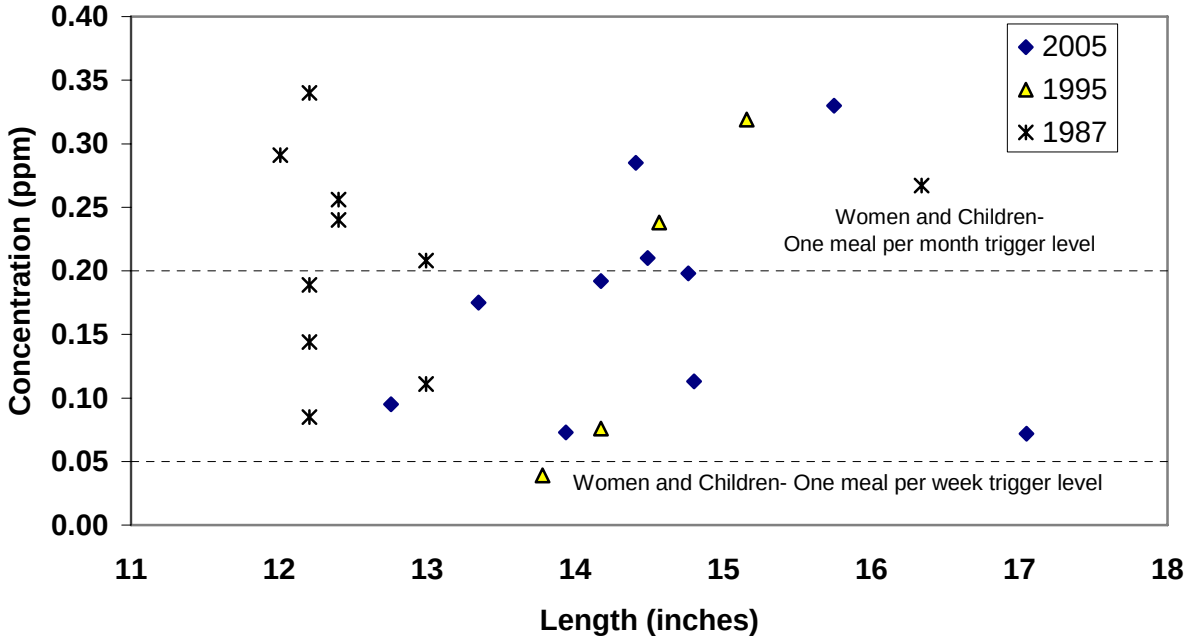


Figure 59. Total length versus total PCB concentration in smallmouth bass collected from the St. Joseph River, Chapin Lake, Berrien Co. in 1987 (ID 87097), 1995 (ID95051.1), and 2005 (ID2005098).

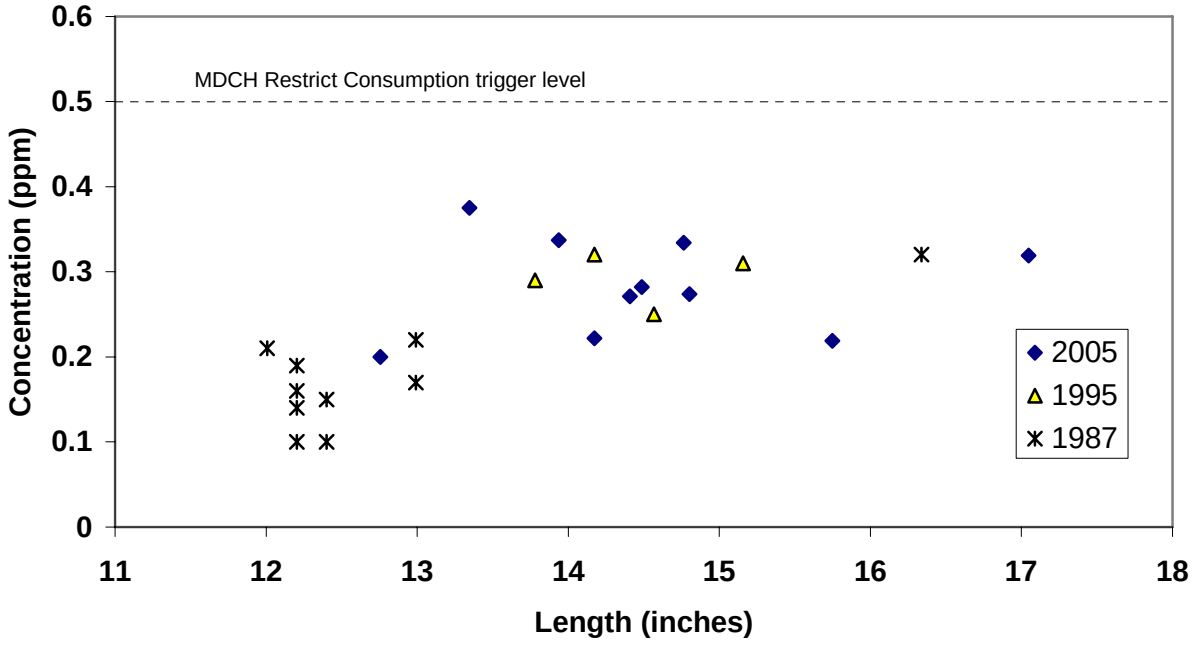


Figure 60. Total length versus total mercury concentration in smallmouth bass collected from the St. Joseph River, Chapin Lake, Berrien Co. in 1987 (ID 87097), 1995 (ID95051.1), and 2005 (ID2005098).

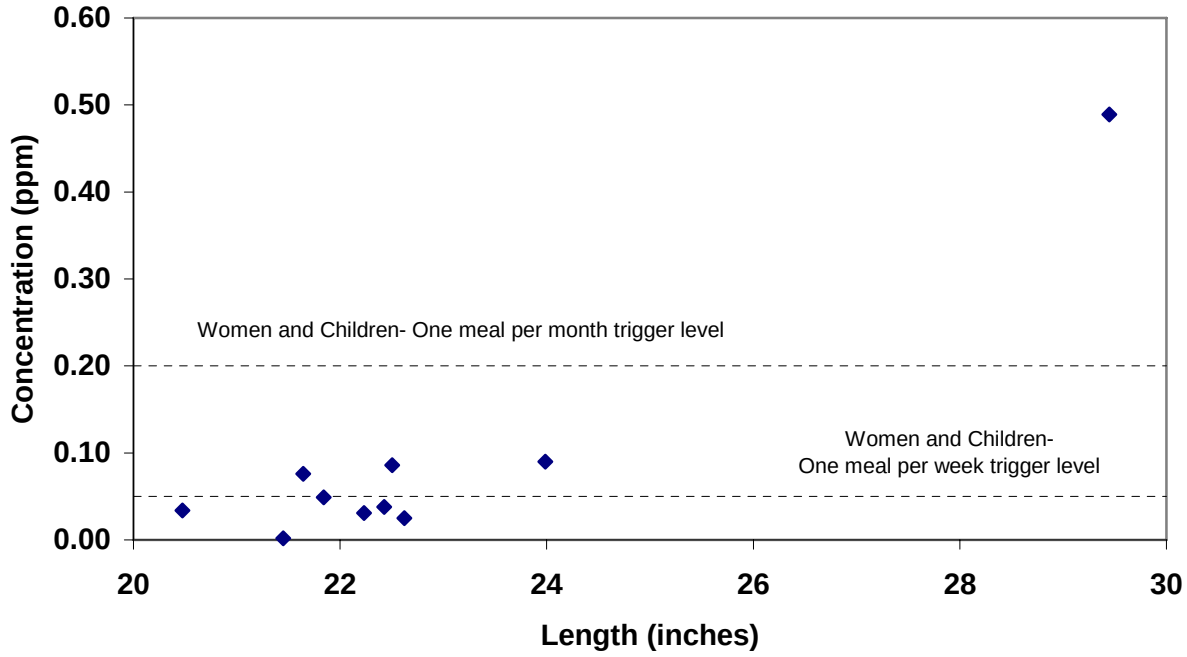


Figure 61. Total length versus total PCB concentration in carp collected from the Thornapple River, Ada Impoundment, Kent Co. in 2005 (ID2005130).

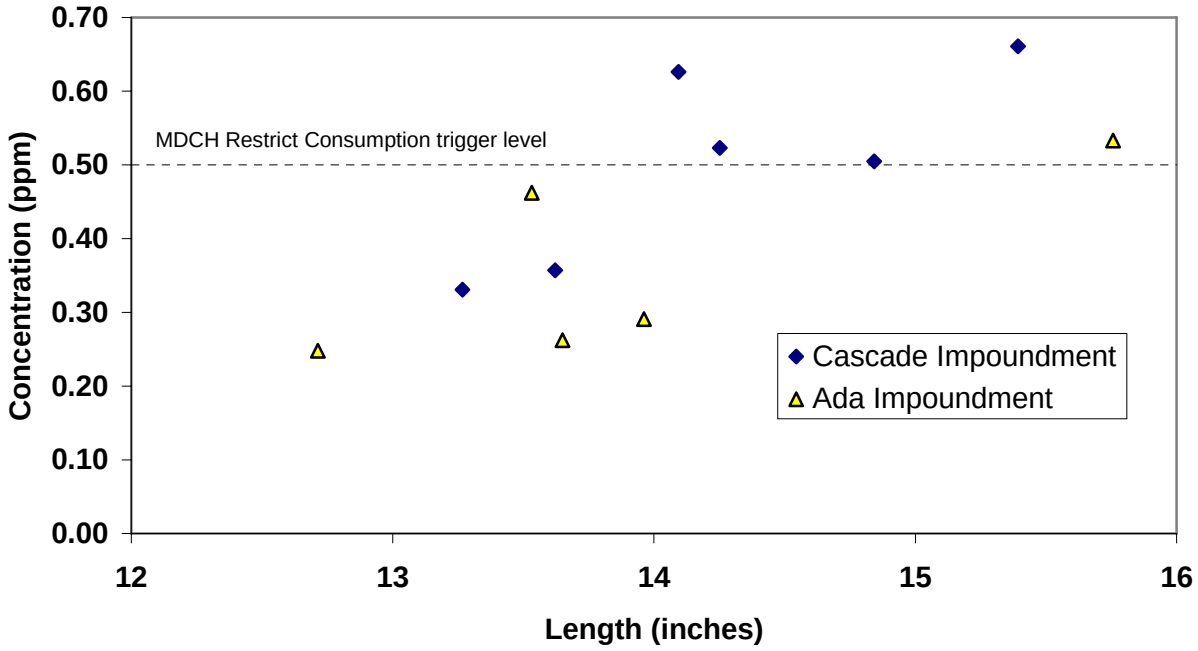


Figure 62. Total length versus total mercury concentration in smallmouth bass collected from the Thornapple River, Cascade and Ada Impoundments, Kent Co. in 2005 (IDs 2005130 & 2005131).

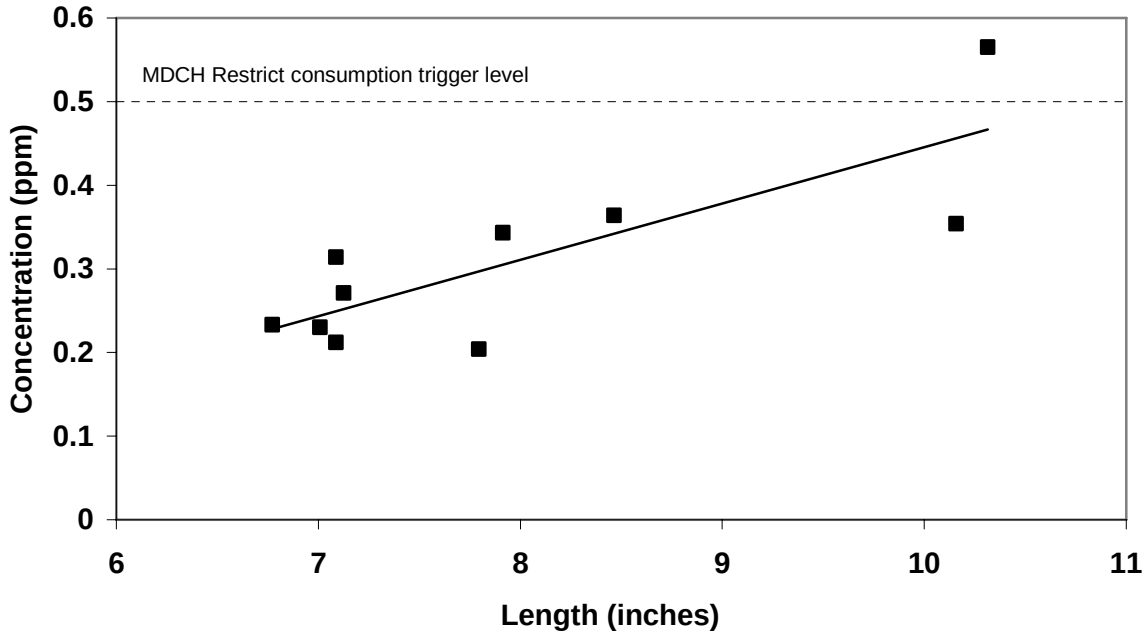


Figure 63. Total length versus mercury concentration in brook trout collected from Carp Creek, Marquette Co. in 2005 (ID 2005013).

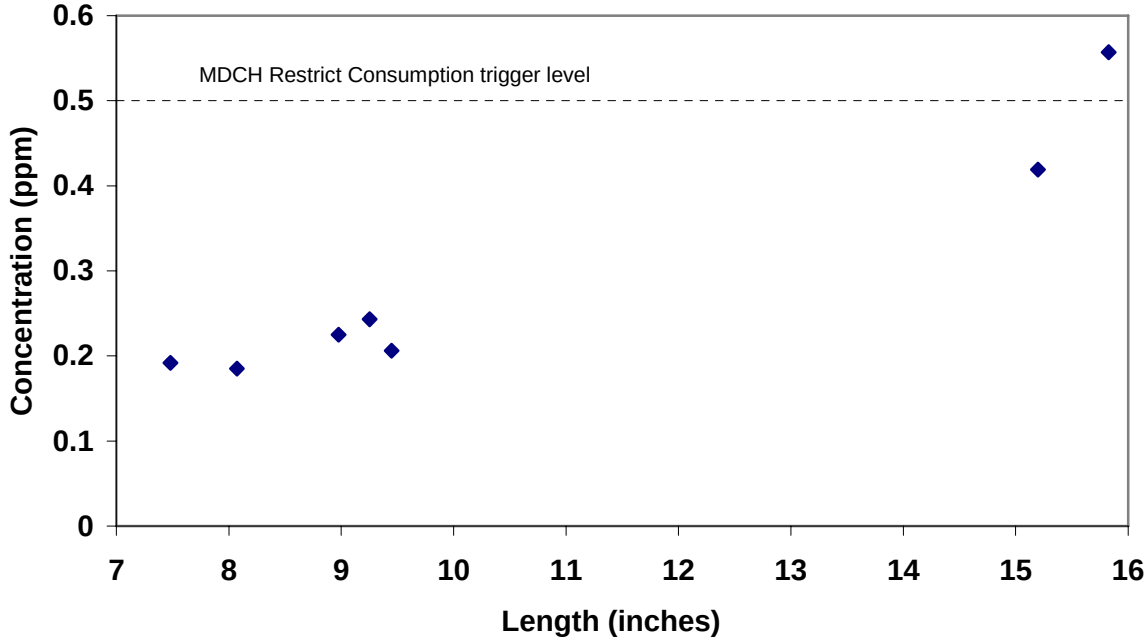


Figure 64. Total length versus mercury concentration in white sucker collected from Carp Creek, Marquette Co. in 2005 (ID 2005013).

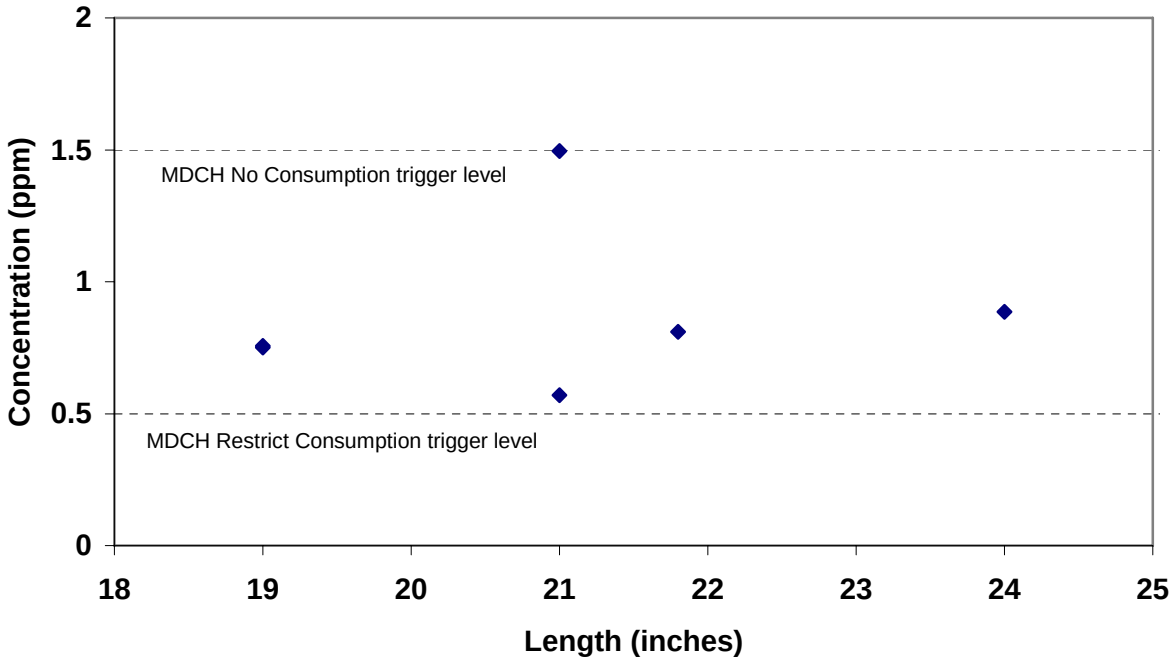


Figure 65. Total length versus mercury concentration in northern pike collected from the Dead River, Forestville Basin, Marquette Co. in 2005 (ID 2005017).

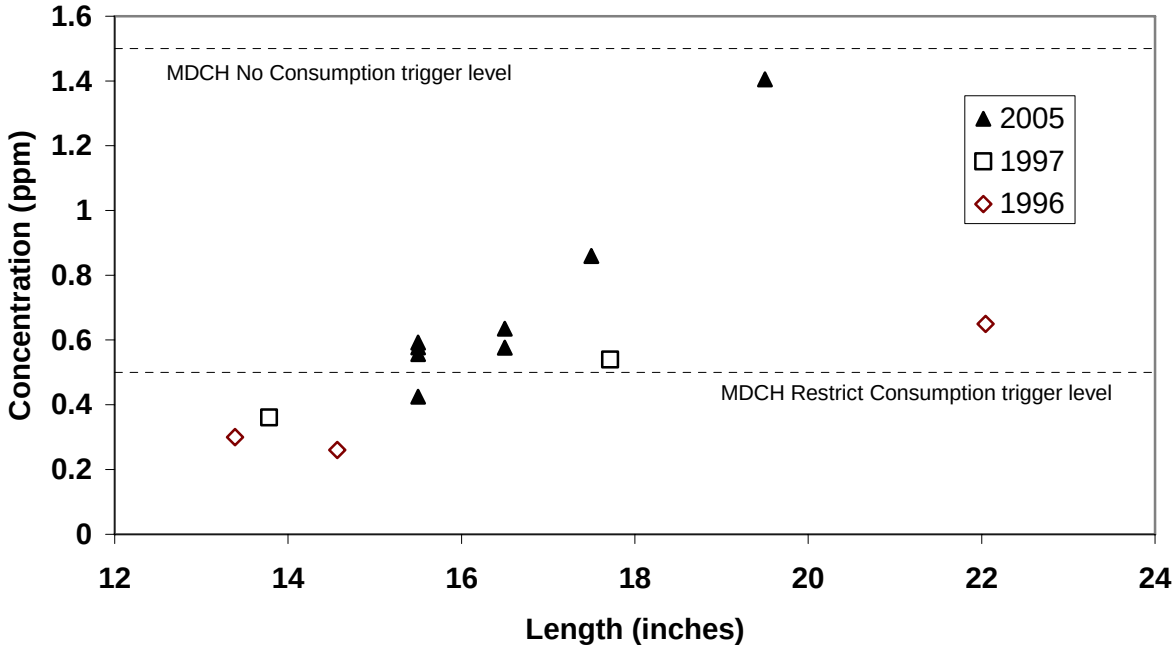


Figure 66. Total length versus mercury concentration in walleye collected from the Dead River, Marquette Co. in 1996 (ID 96007), 1997 (ID 97075), and 2005 (ID 2005017).

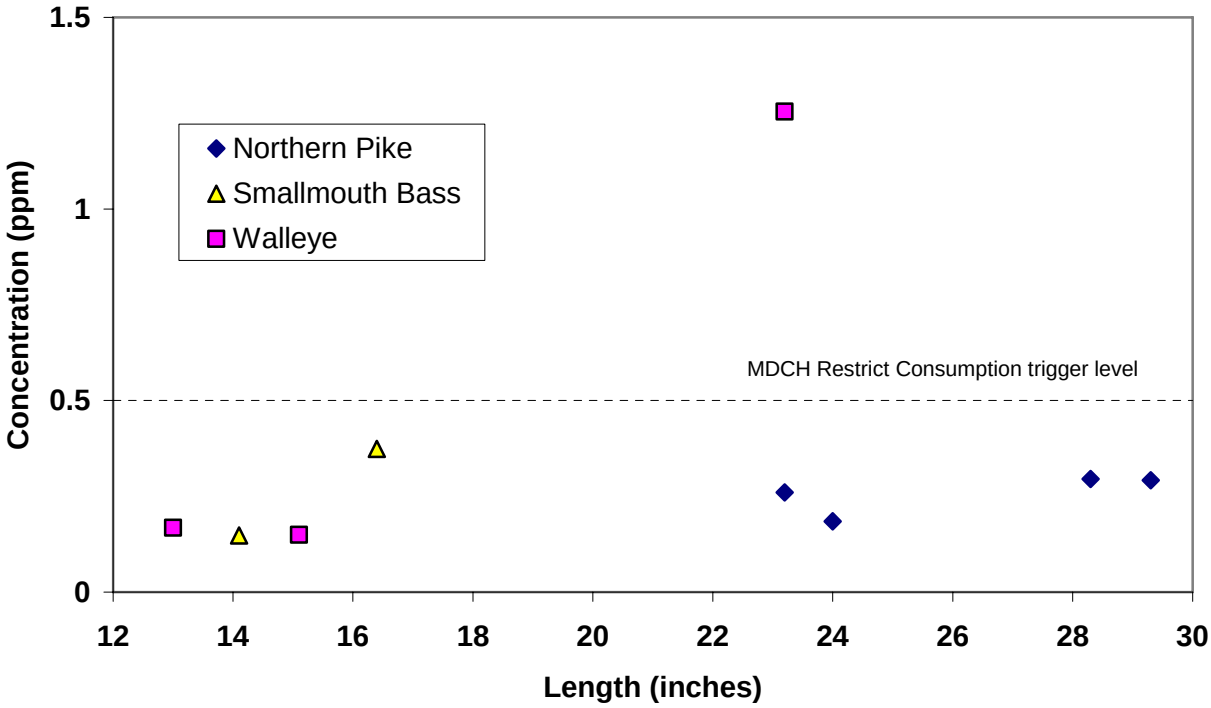


Figure 67. **Total length versus mercury concentration in northern pike, smallmouth bass, and walleye collected from Gratiot Lake, Keweenaw County, in 2005 (ID 2005025).**

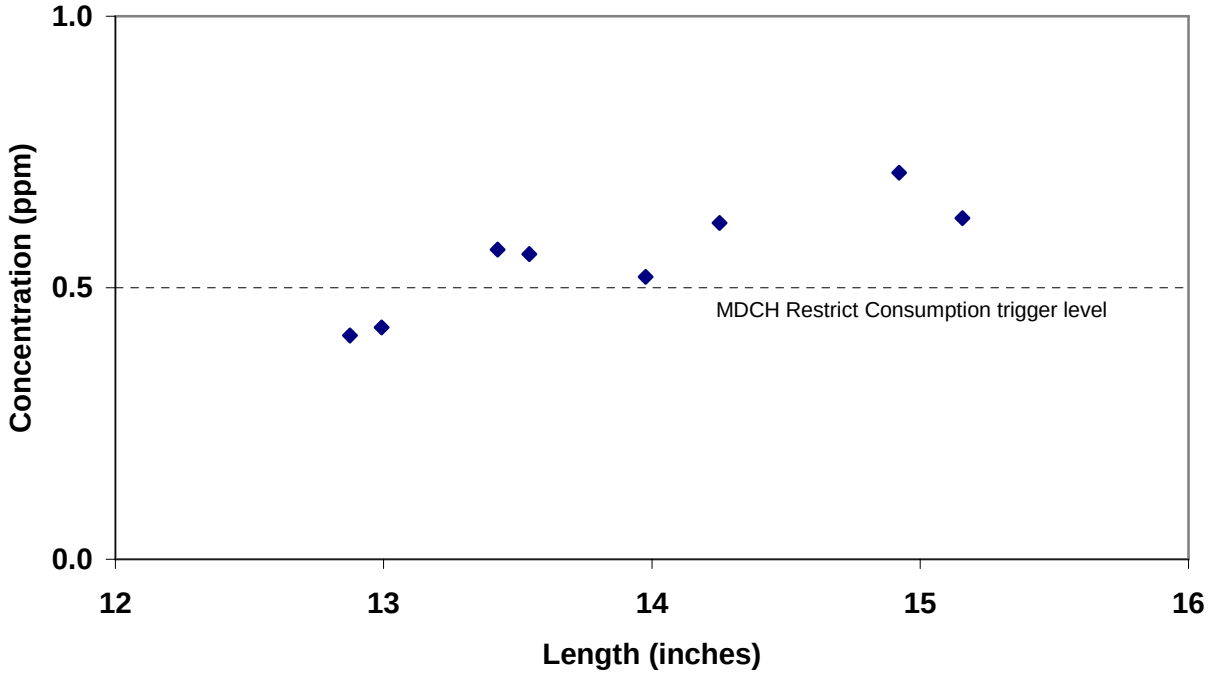


Figure 68. **Total length versus mercury concentration in largemouth bass collected from King Lake, Baraga Co. in 2005 (ID 2005037).**

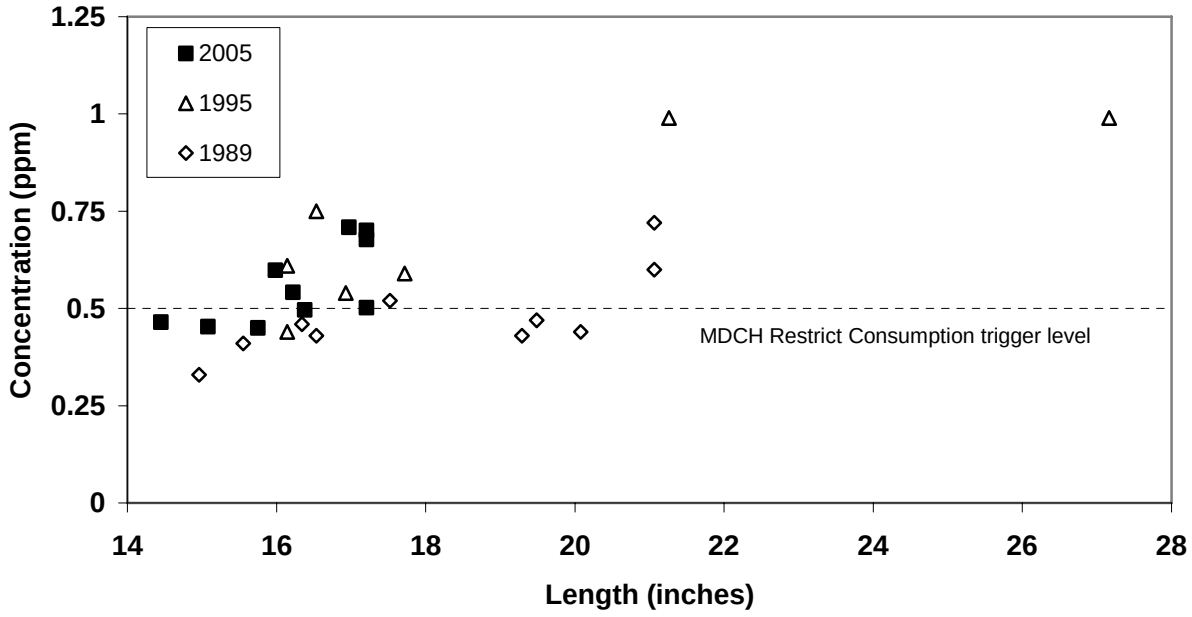


Figure 69. Total length versus mercury concentration in walleye collected from Lake Independence, Marquette Co. in 1989 (ID 89034), 1995 (ID 95009), and in 2005 (ID 2005045).

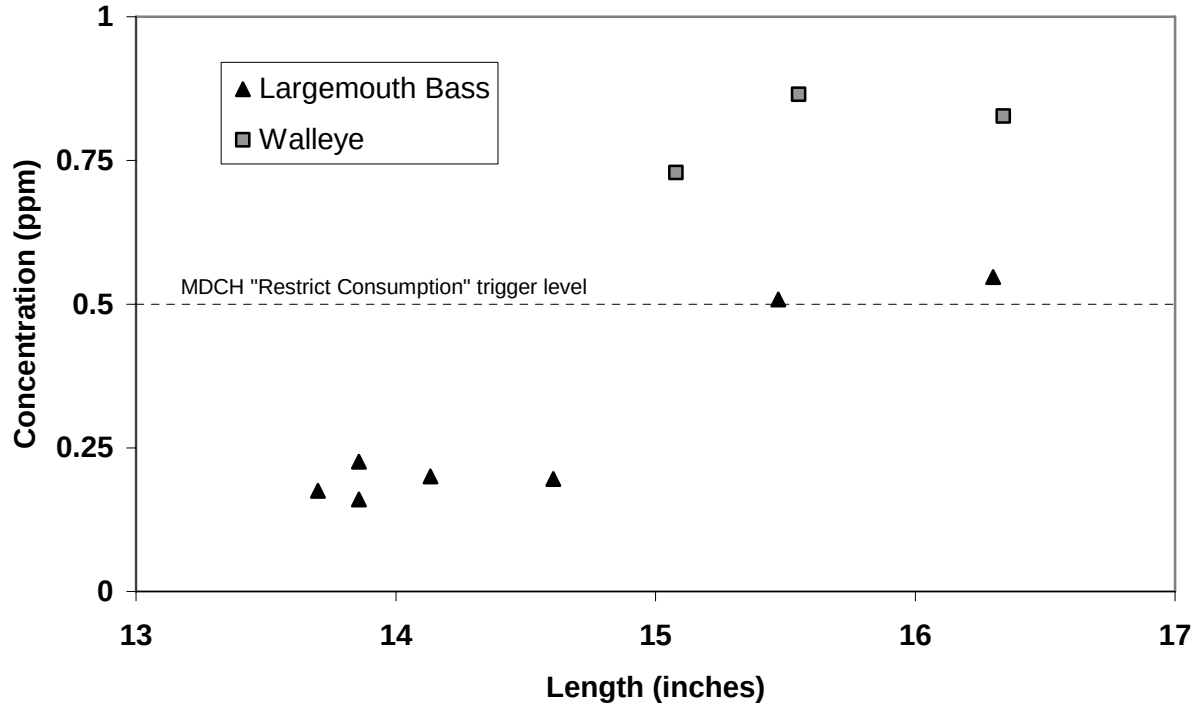


Figure 70. Total length versus mercury concentration in largemouth bass and walleye collected from Little Oxbow Lake, Gogebic Co. in 2005 (ID 2005056).

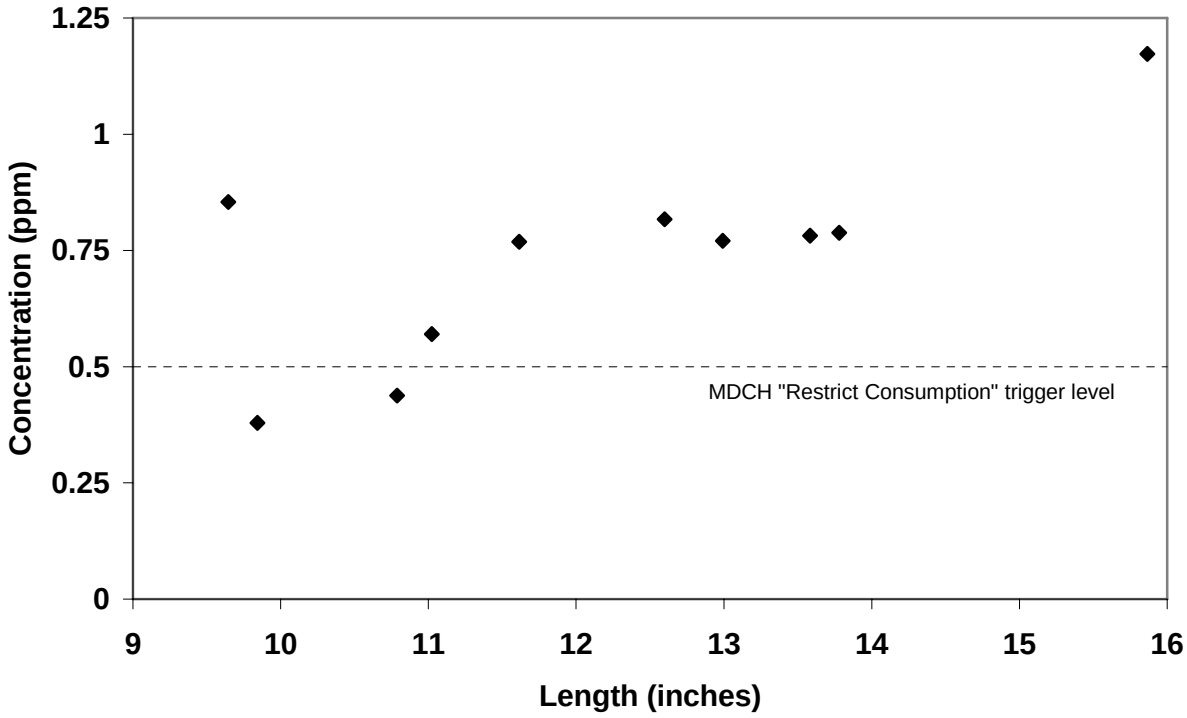


Figure 71. Total length versus mercury concentration in largemouth bass collected from Ormes Lake, Gogebic Co. in 2005 (ID 2005071).

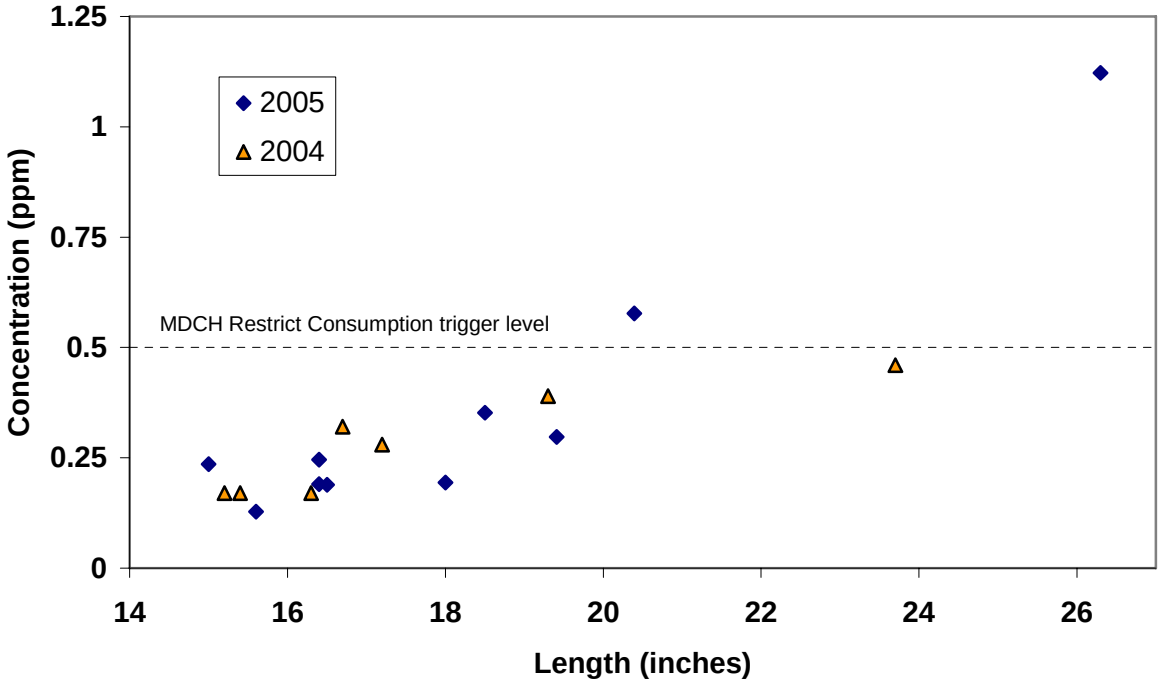


Figure 72. Total length versus mercury concentration in walleye collected from Teal Lake, Marquette Co. in 2004 and 2005 (IDs 2004122 and 2005106).

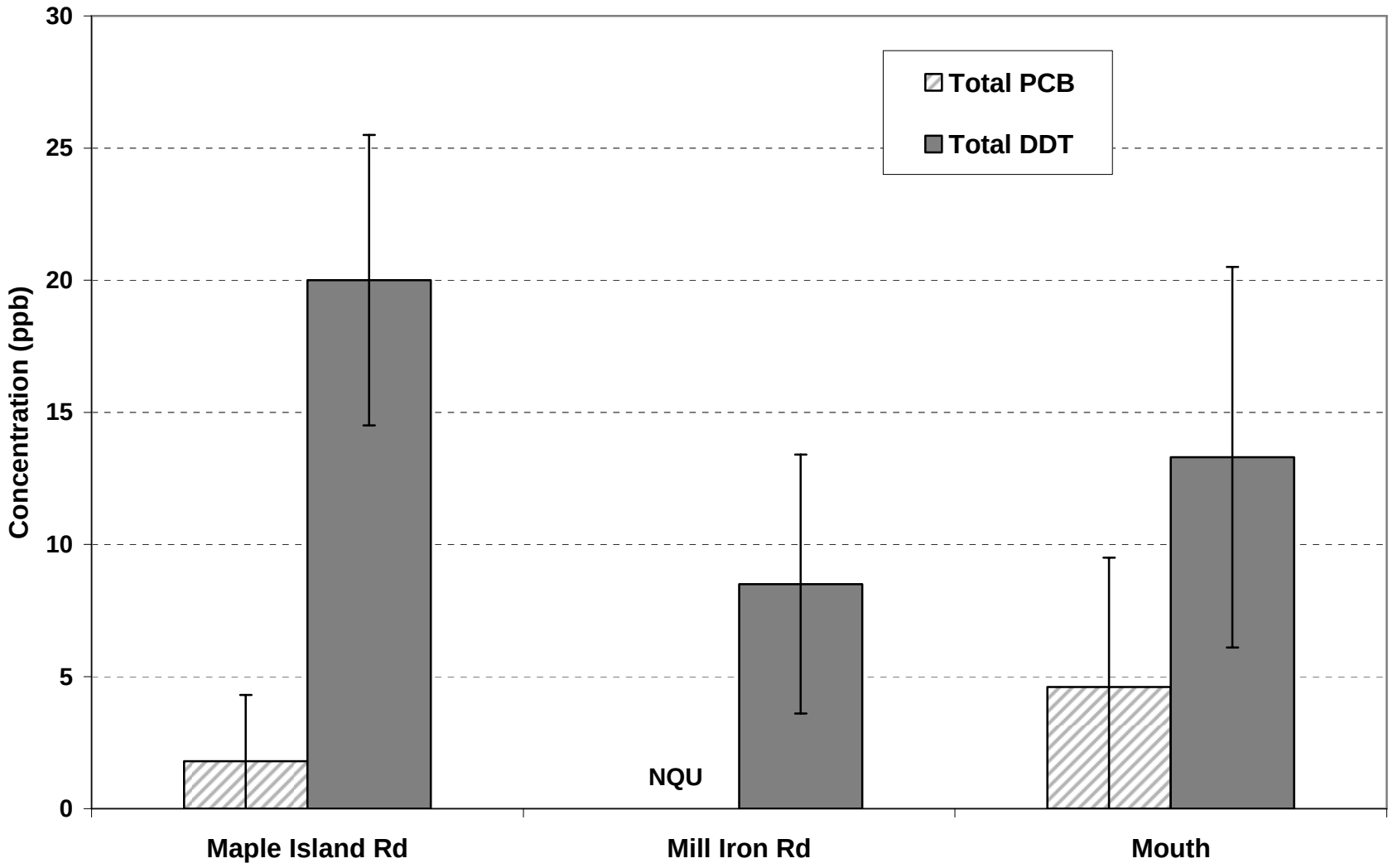


Figure 73. **Net uptake of contaminants in the Black Creek caged fish monitored in 2005. Concentrations are lipid normalized. Error bars indicate 95% confidence intervals. (NQU = no quantifiable uptake).**

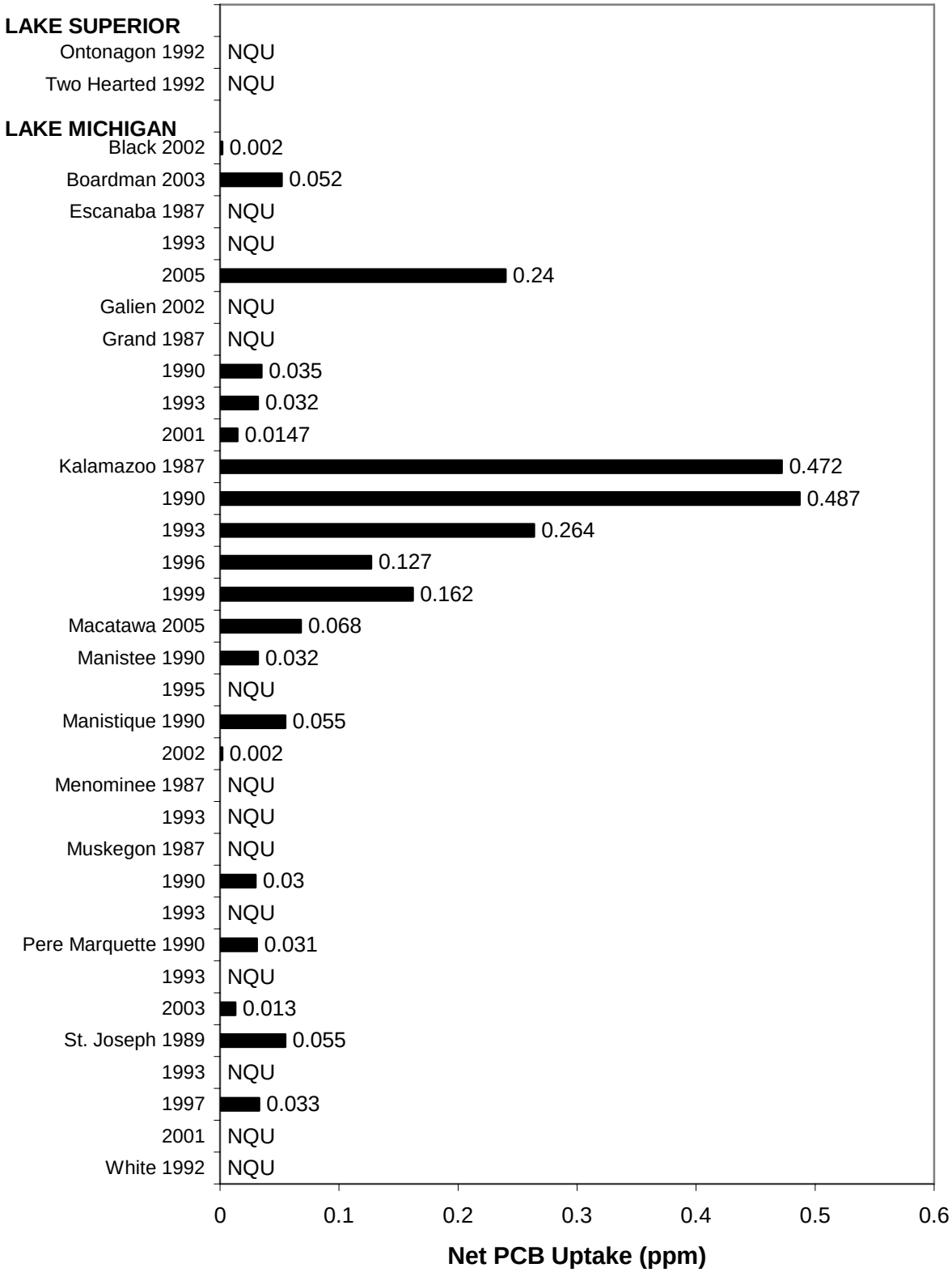


Figure 74. Net uptake of total PCB in caged fish from the mouths of selected Michigan rivers (NQU = no quantifiable uptake).

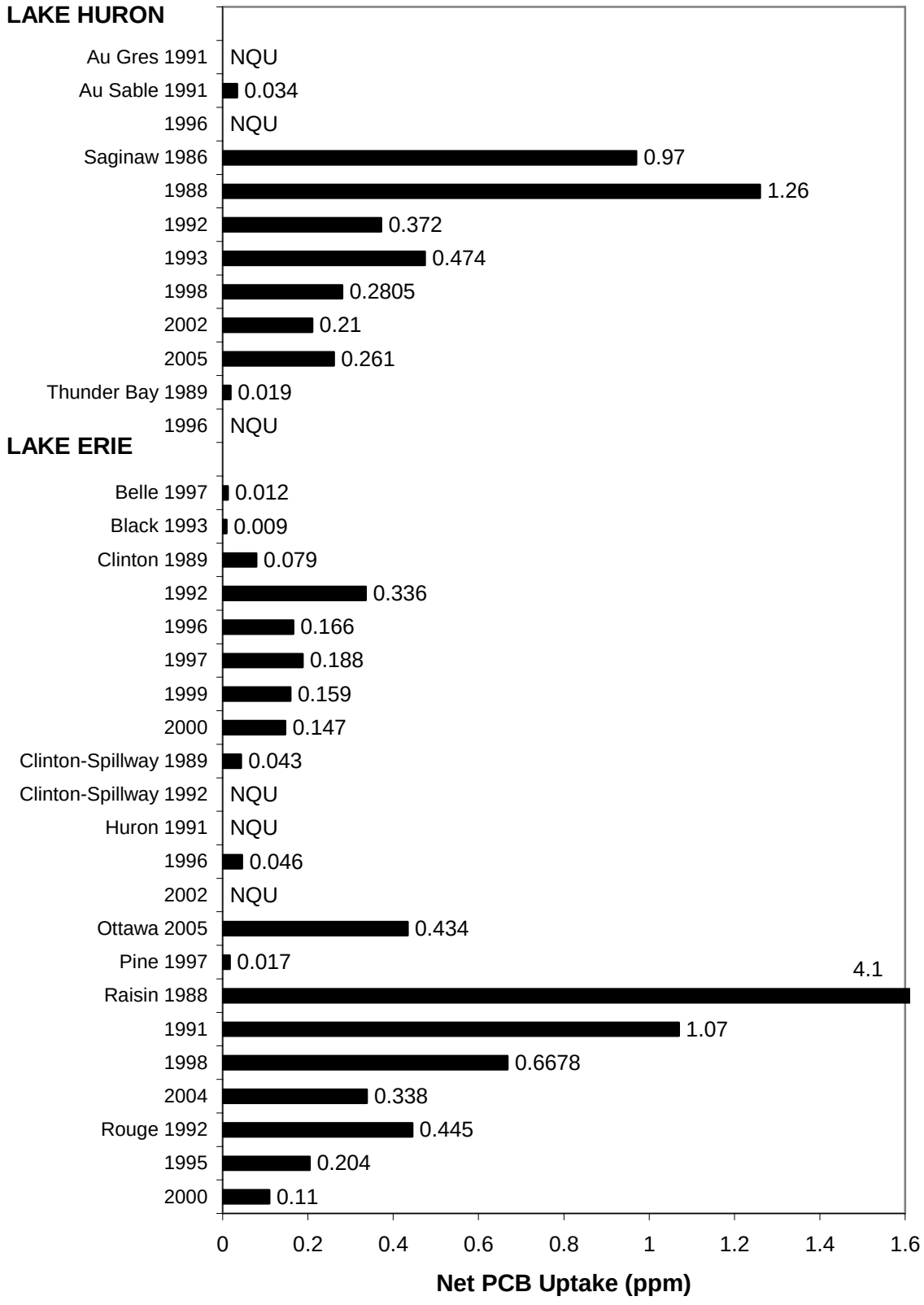


Figure 74. Continued.

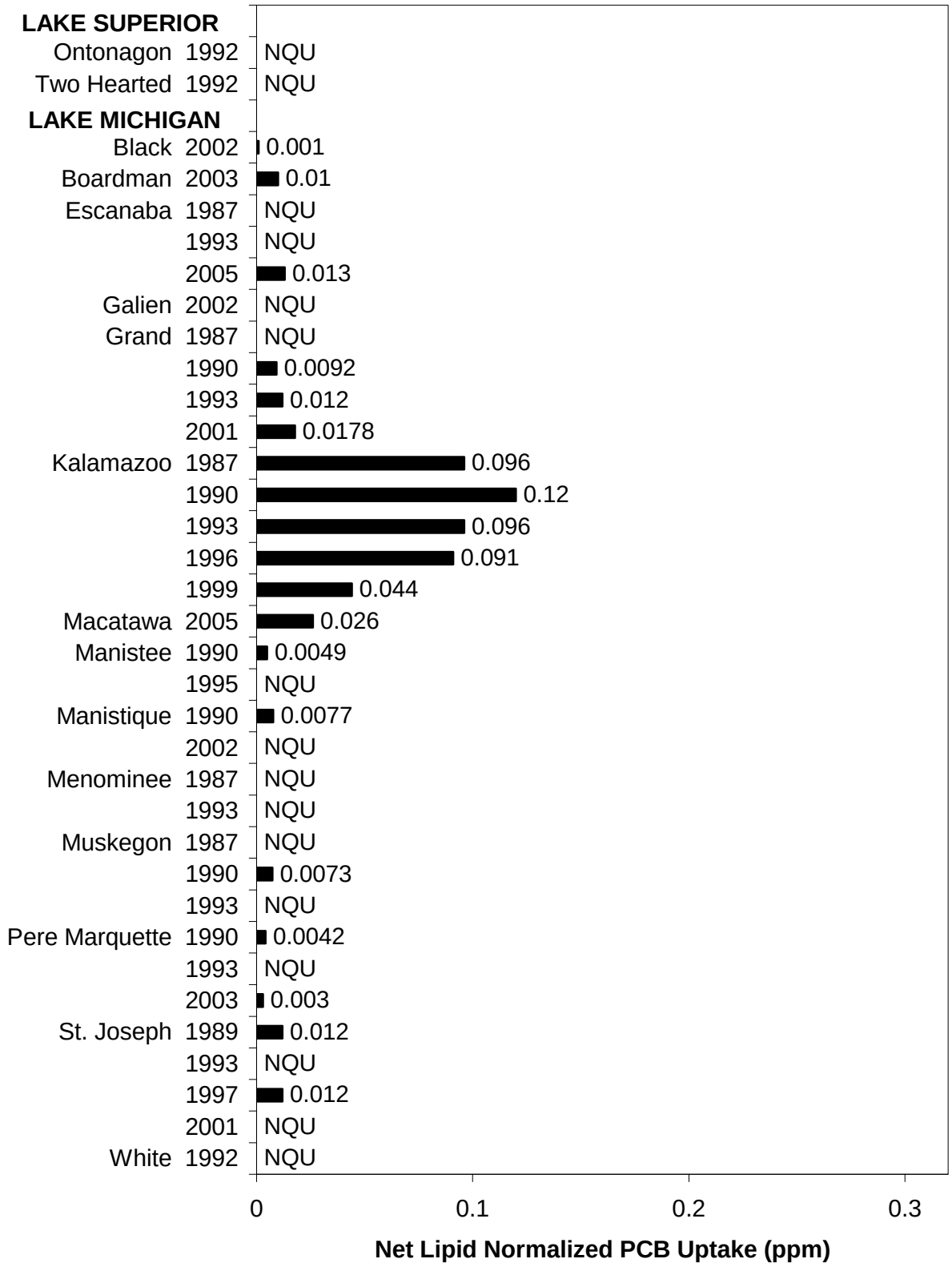


Figure 75. Net uptake of lipid normalized total PCB in caged fish from the mouths of selected Michigan rivers (NQU = no quantifiable uptake).

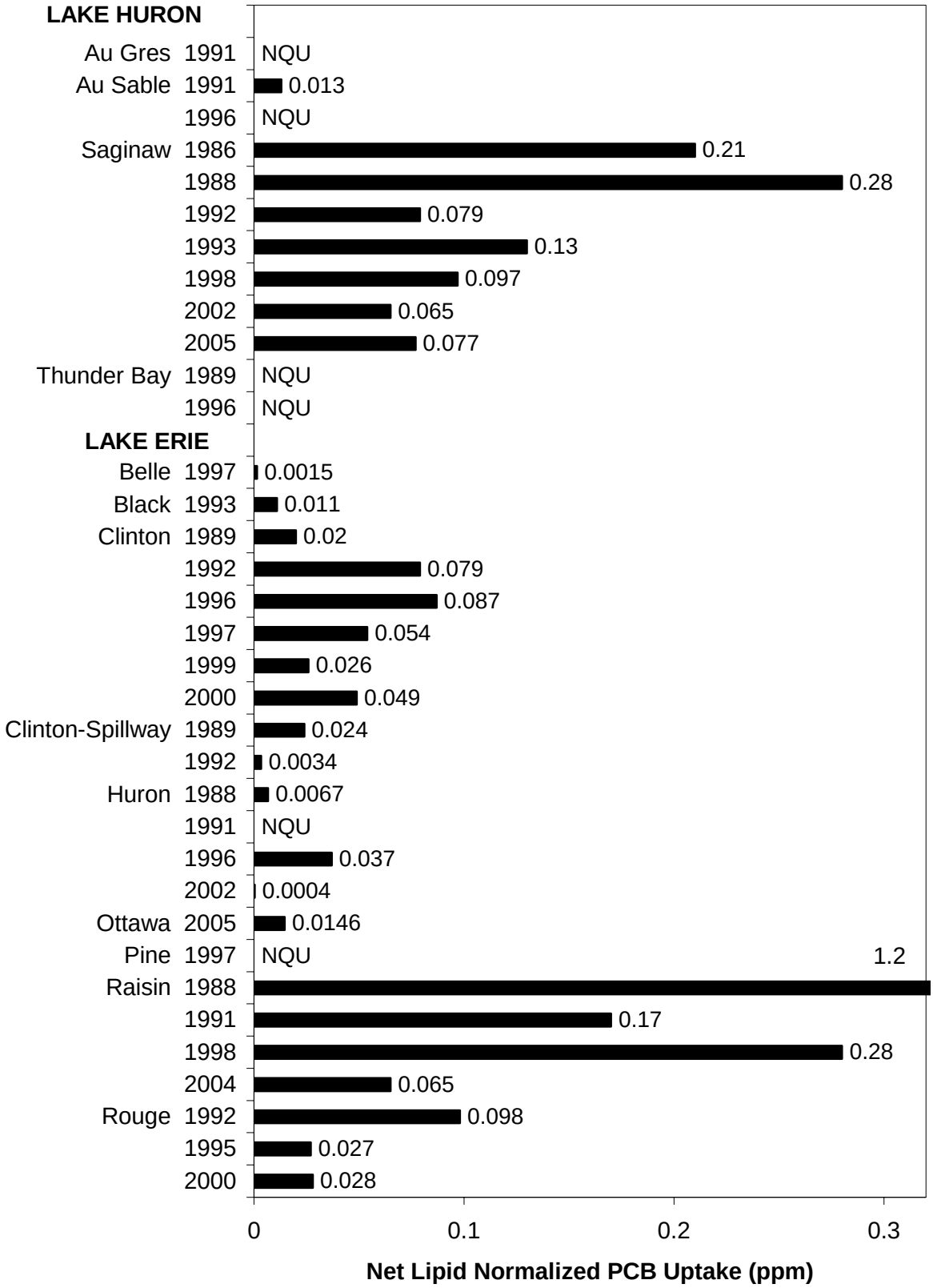


Figure 75. Continued

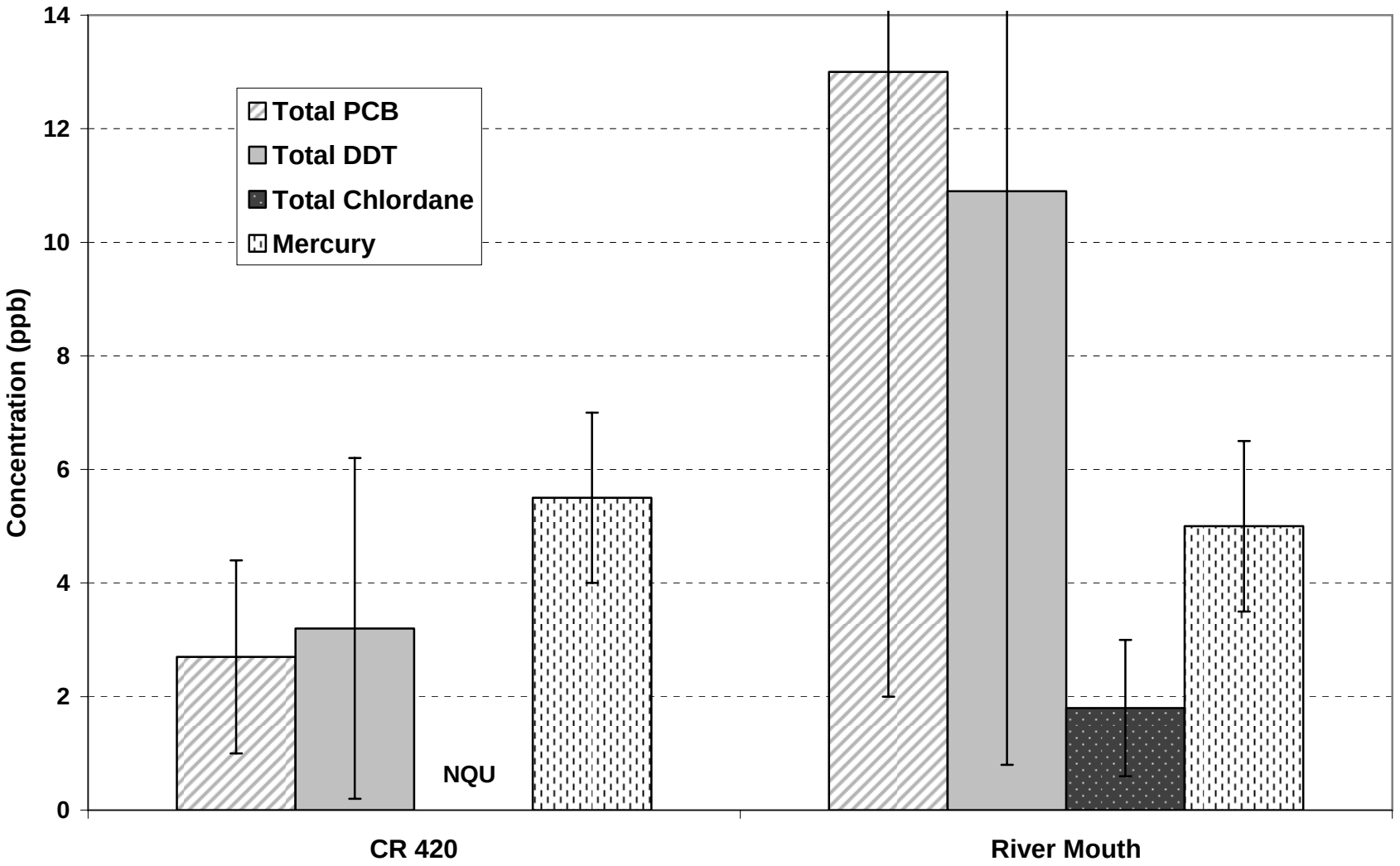


Figure 76. **Net uptake of contaminants in the Escanaba River caged fish monitored in 2005. Mercury concentrations are wet weight and all other contaminants are lipid normalized. Error bars indicate 95% confidence intervals. (NQU = no quantifiable uptake).**

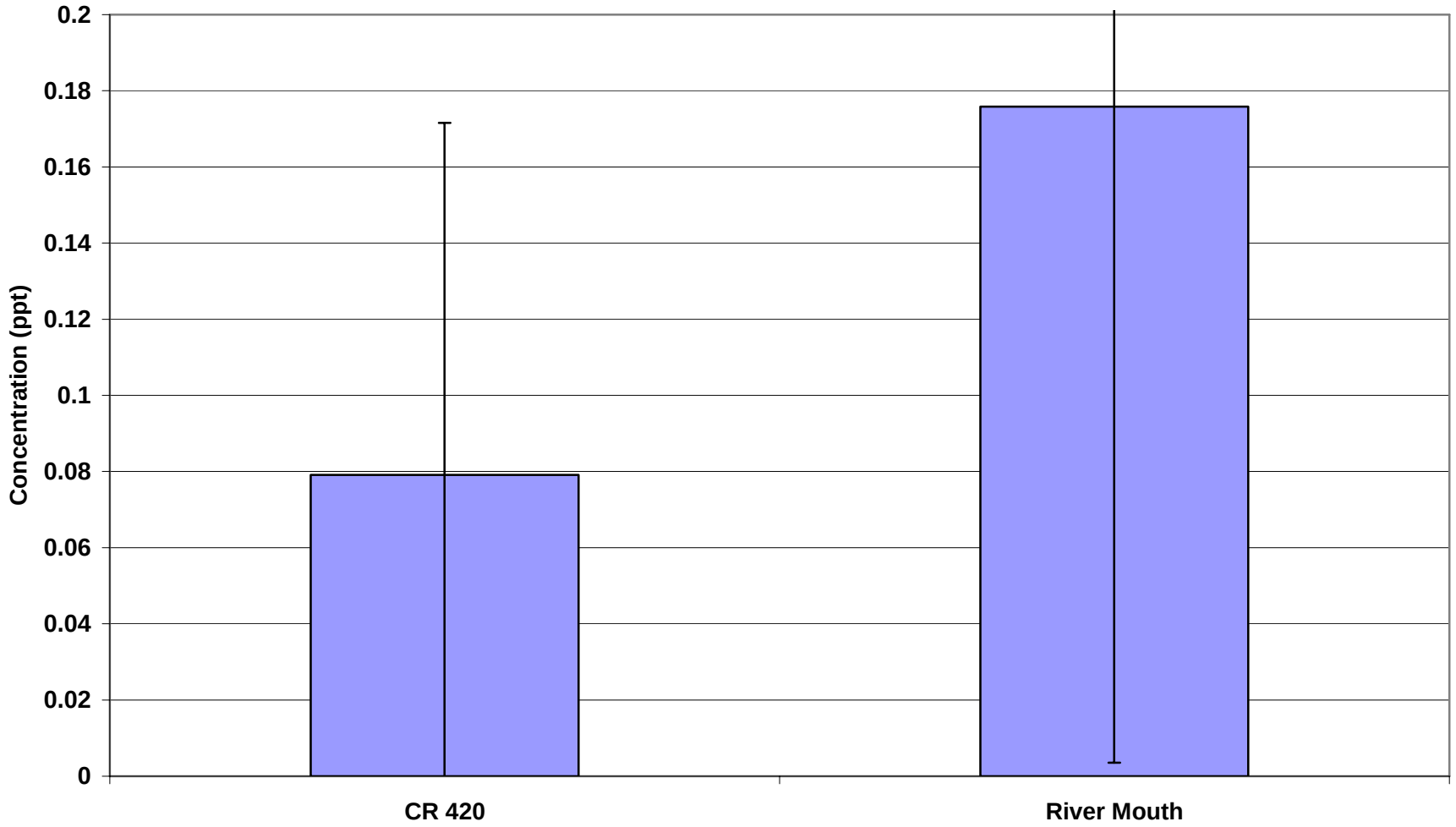


Figure 77. Net uptake of total Dioxin TEQ in the Escanaba River caged fish monitored in 2005. Concentrations are lipid normalized. Error bars indicate 95% confidence intervals.

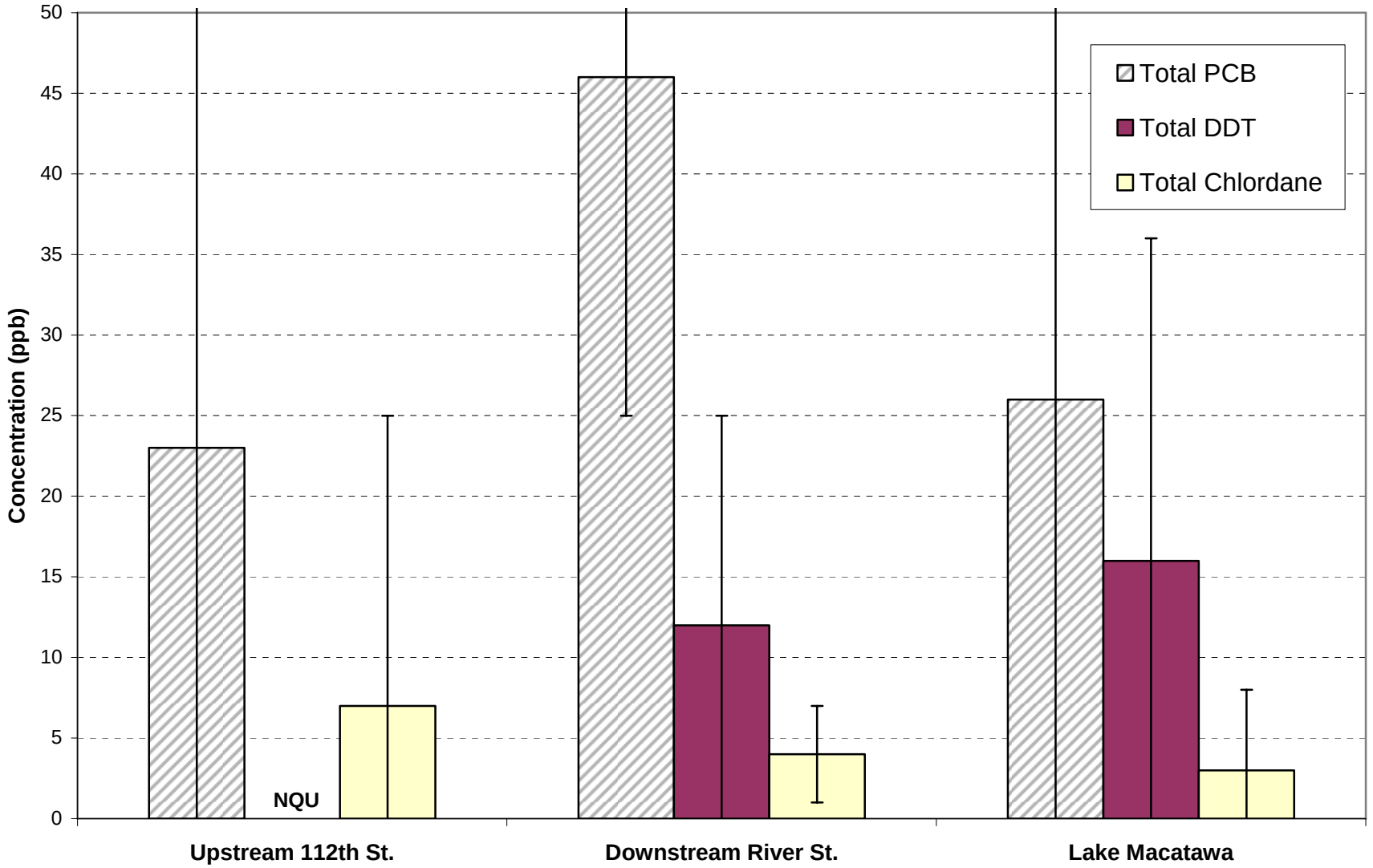


Figure 78. **Net uptake of contaminants in the Macatawa River caged fish monitored in 2005. Concentrations are lipid normalized. Error bars indicate 95% confidence intervals. (NQU = no quantifiable uptake).**

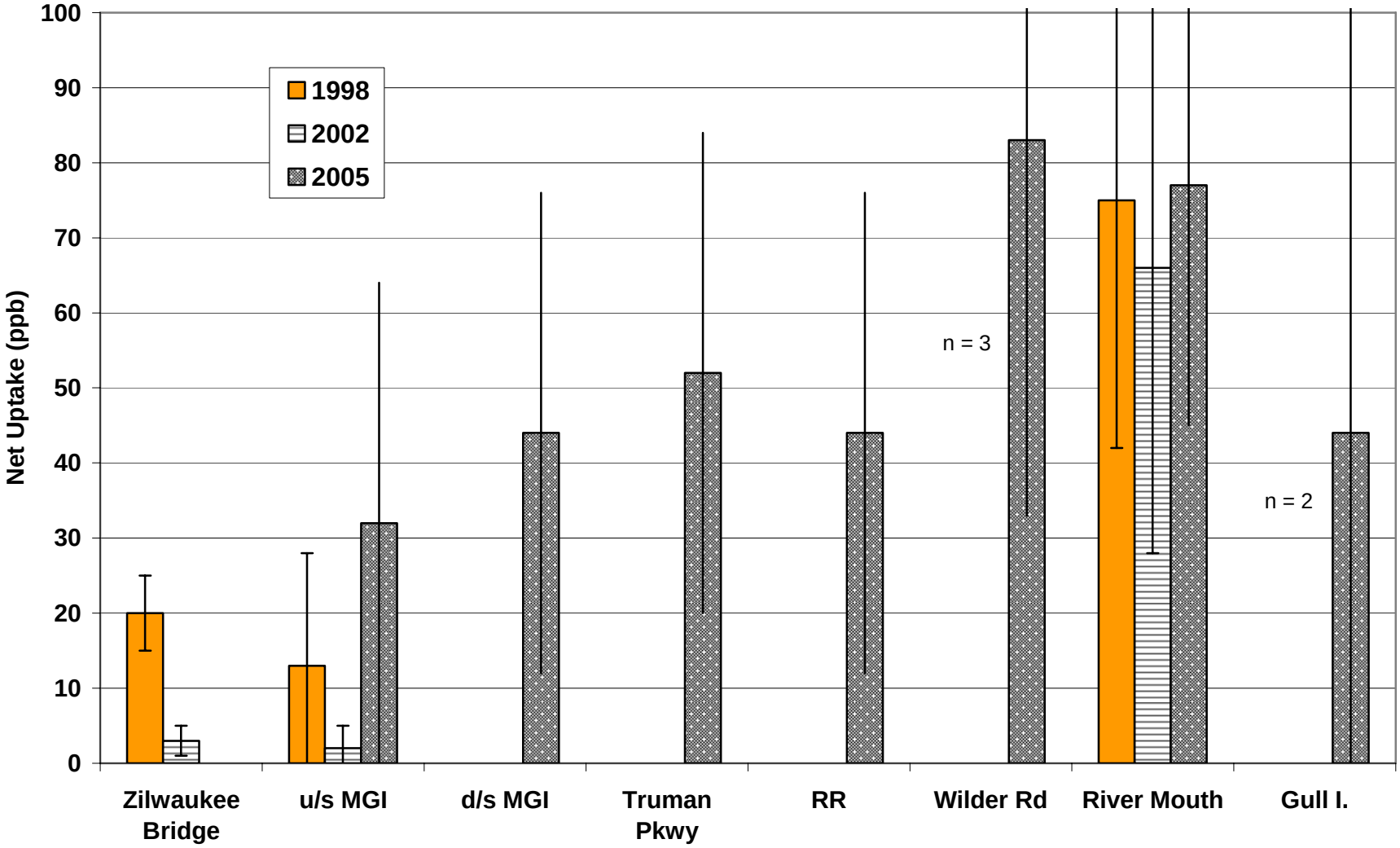


Figure 79. **Net uptake of lipid normalized total PCB in the Saginaw River caged fish monitored in 1998, 2002, and 2005. Error bars indicate 95% confidence intervals. Sample size equals 4 except where noted.**

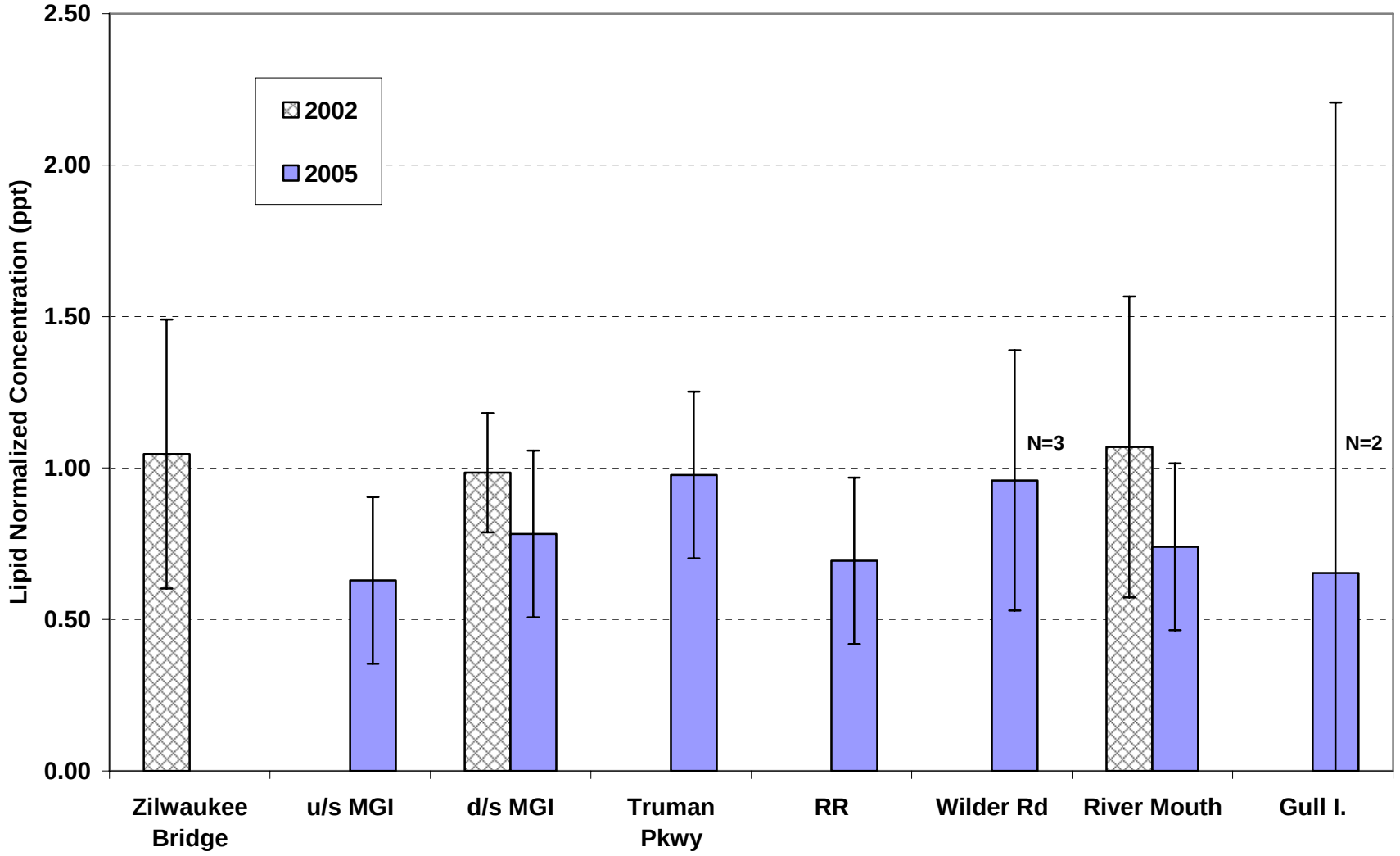


Figure 80. **Net uptake of 2,3,7,8 TCDD TEQ in the Saginaw River caged fish monitored in 2002 and 2005. Concentrations are lipid normalized. Error bars indicate 95% confidence intervals. Sample size equals 4 except where noted.**

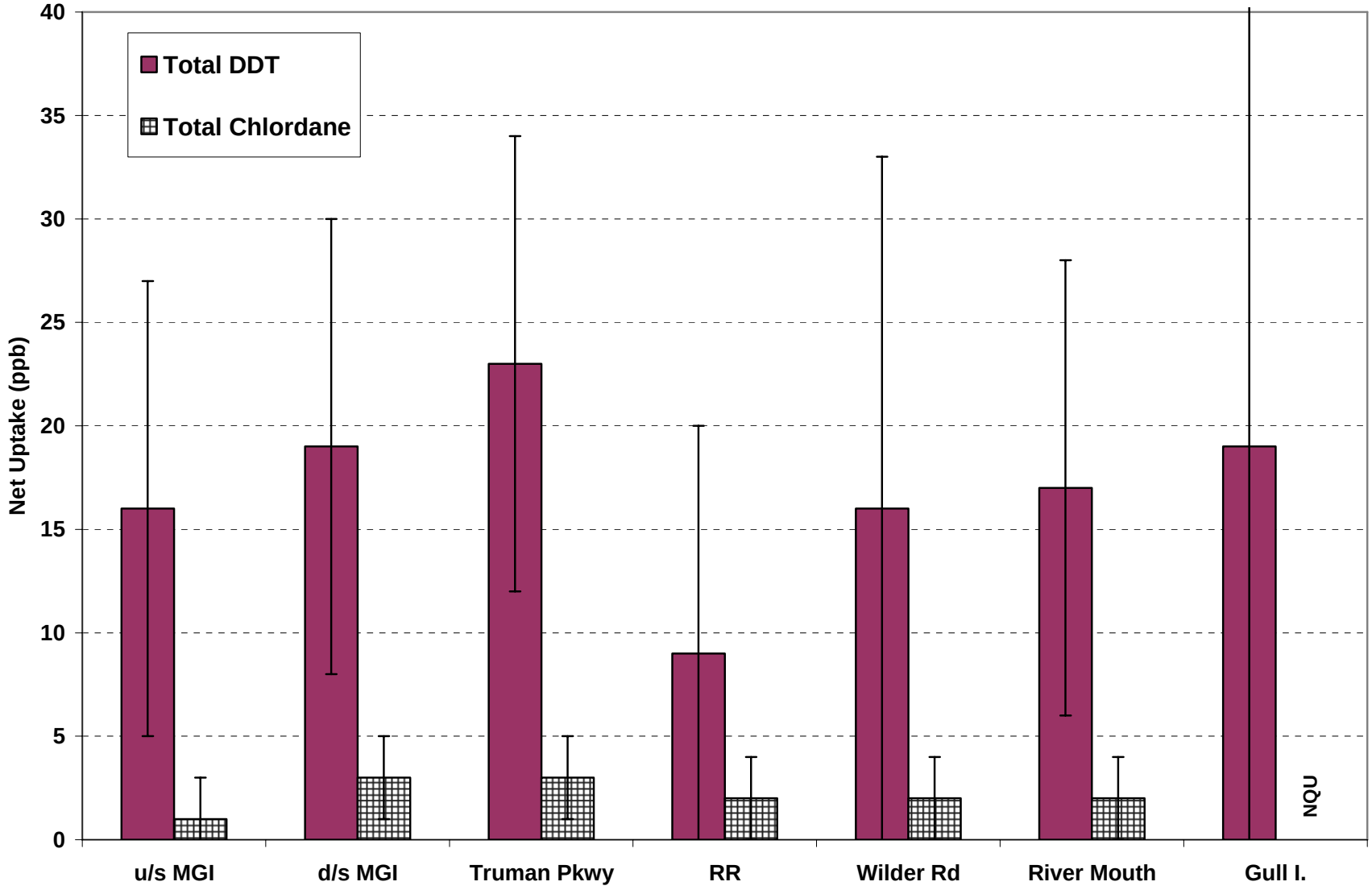


Figure 81. **Net uptake of total DDT and total chlordane in the Saginaw River caged fish monitored in 2005. Concentrations are lipid normalized. Error bars indicate 95% confidence intervals. (NQU = no quantifiable uptake).**

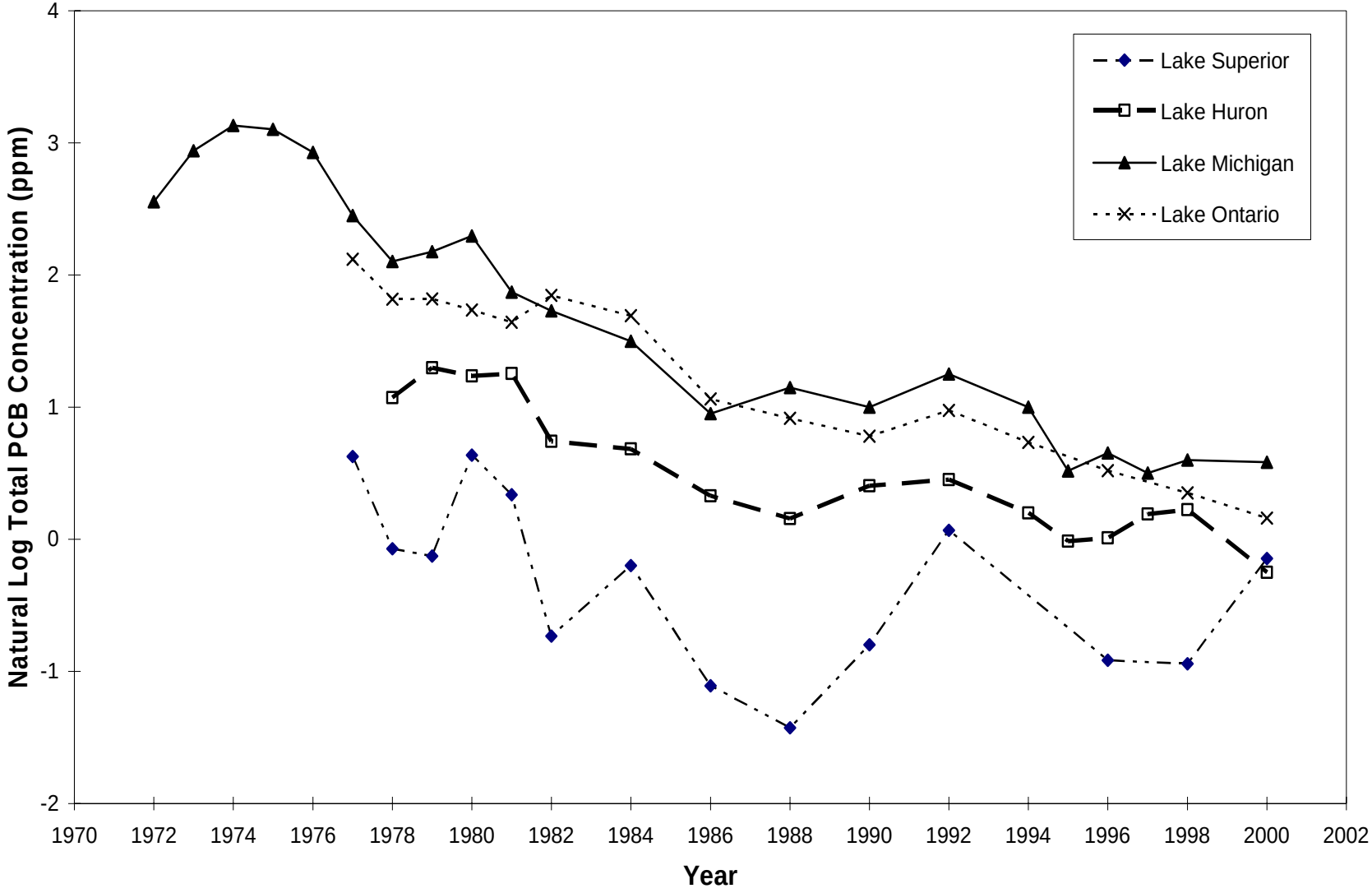


Figure 82. Natural log of average total PCB concentrations in whole lake trout from the Great Lakes, 1970-2000 (DeVault et al. 1996; USEPA unpublished data).

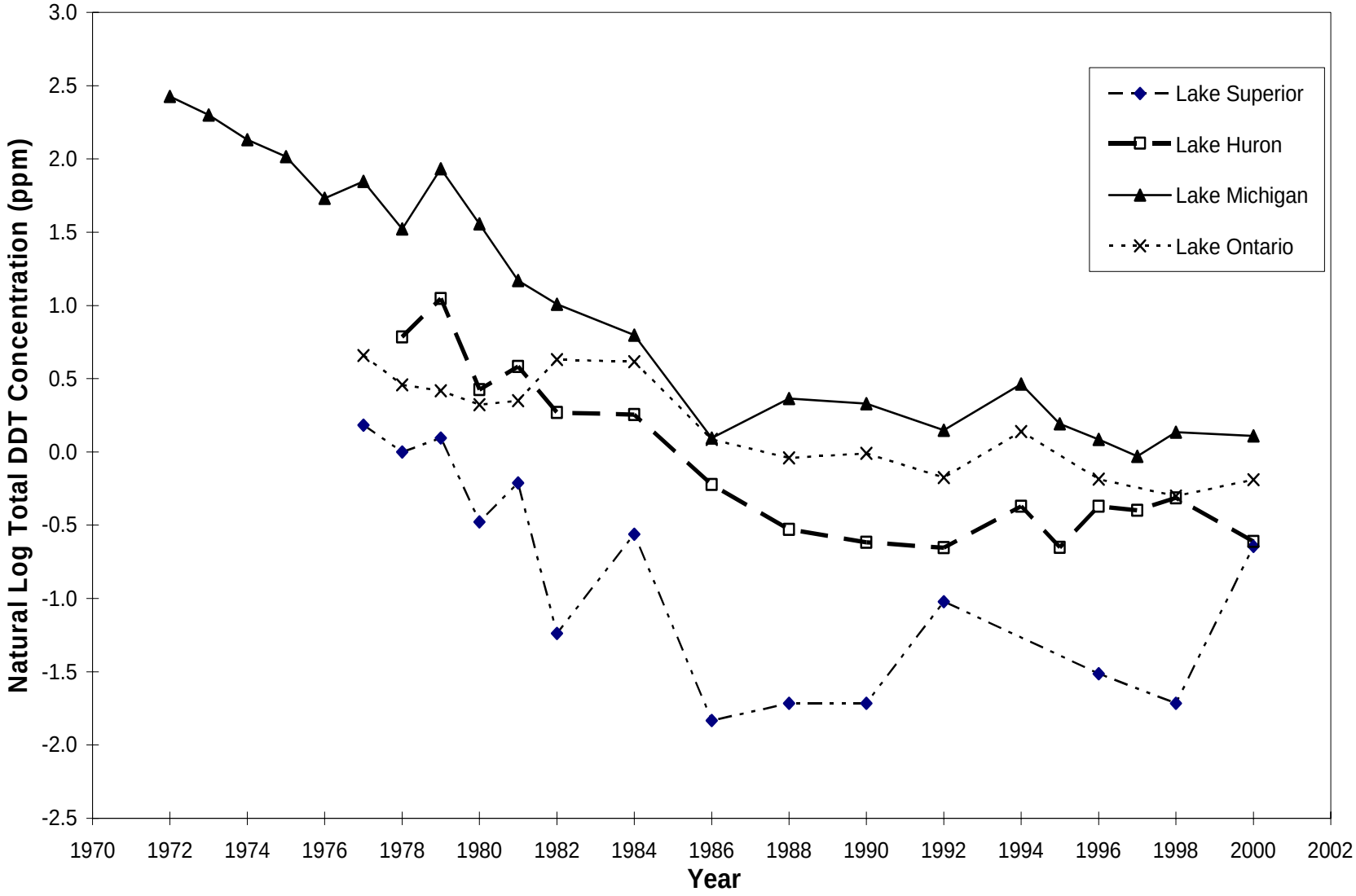


Figure 83. Natural log of average total DDT concentrations in whole lake trout from the Great Lakes, 1970-2000 (DeVault et al. 1996; USEPA unpublished data).

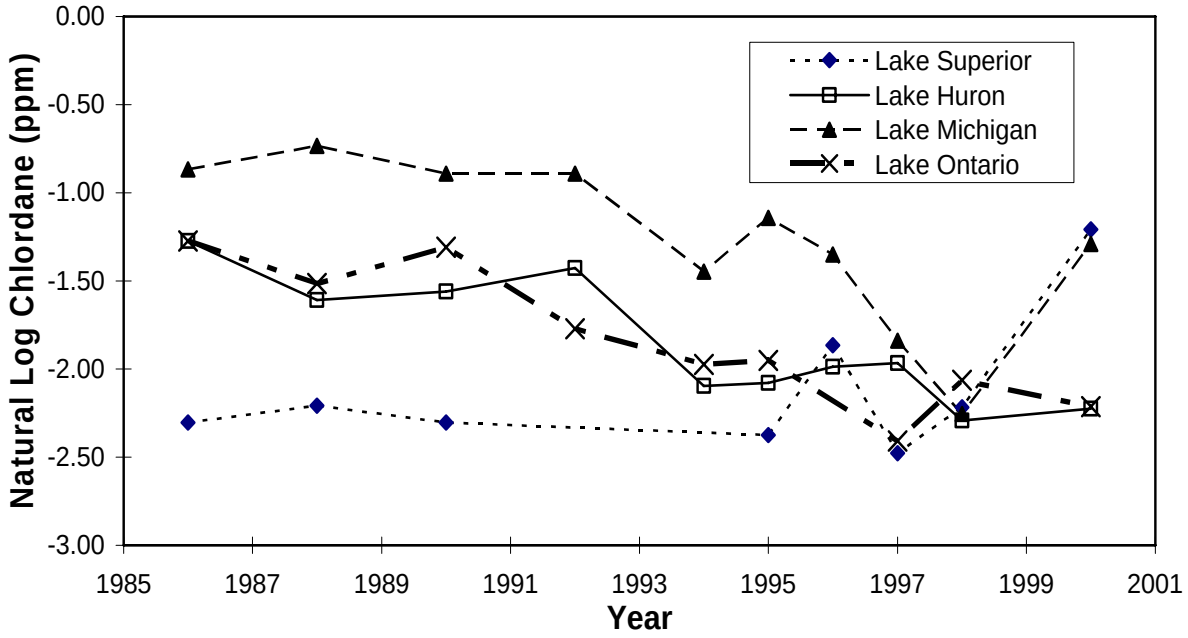


Figure 84. **Natural log of average total chlordane concentrations in whole lake trout from the Great Lakes, 1986-2000 (DeVault et al. 1996, USEPA unpublished data).**

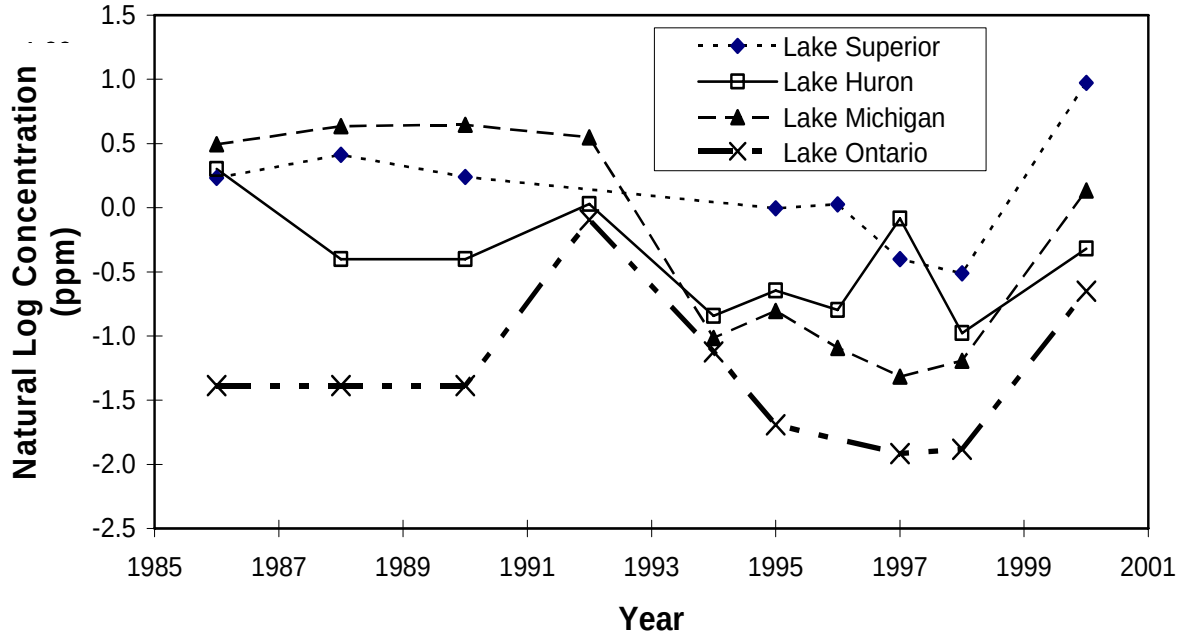


Figure 85. **Natural log of average apparent toxaphene concentrations in whole lake trout from the Great Lakes, 1986-2000 (DeVault et al. 1996; USEPA unpublished data). Concentrations were below the quantification level in Lake Ontario fish collected between 1986 and 2000.**

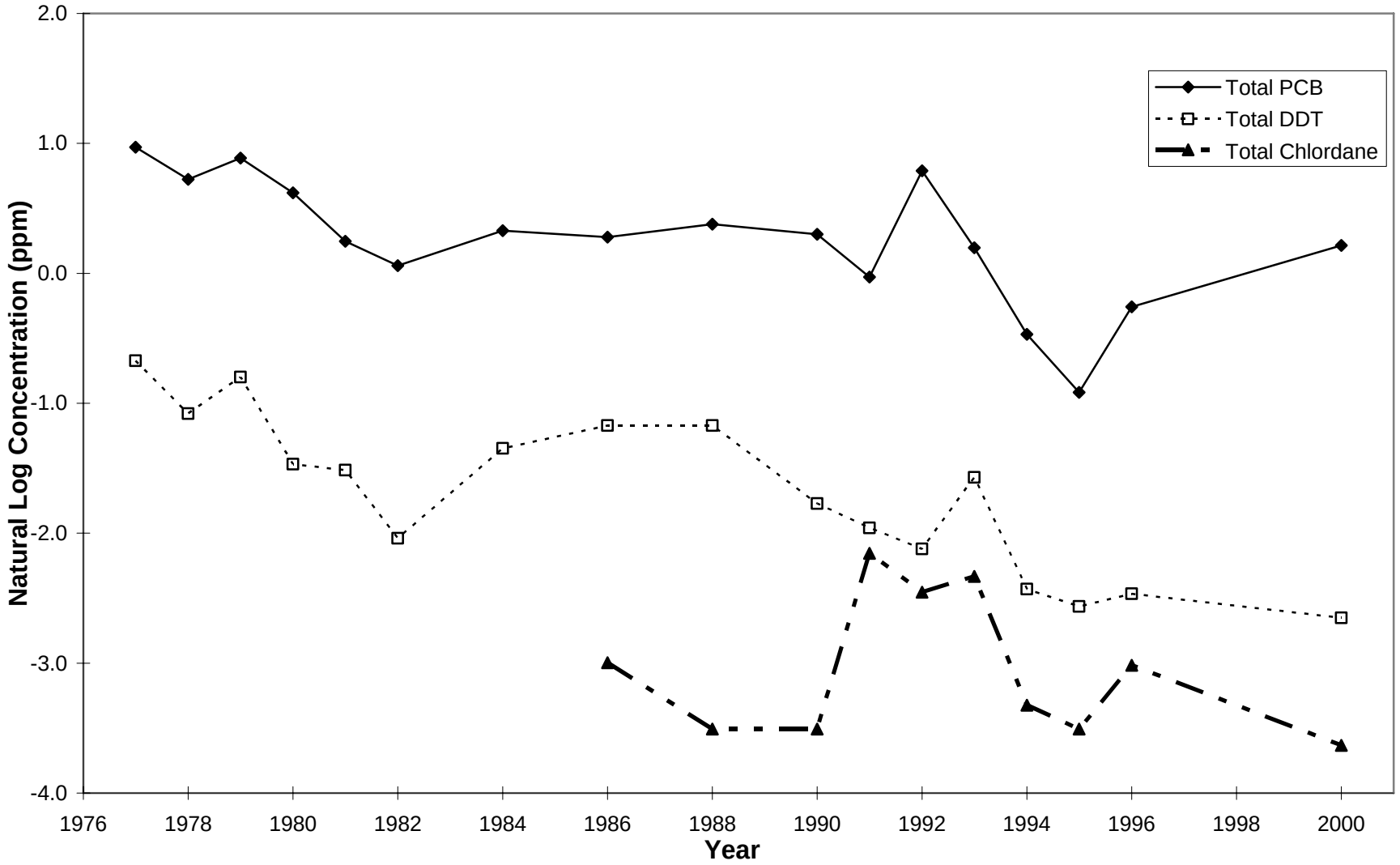


Figure 86. Natural log of average total PCB, total DDT and total chlordane concentrations in whole walleye from Lake Erie 1986-2000 (DeVault et al. 1996; USEPA unpublished data).

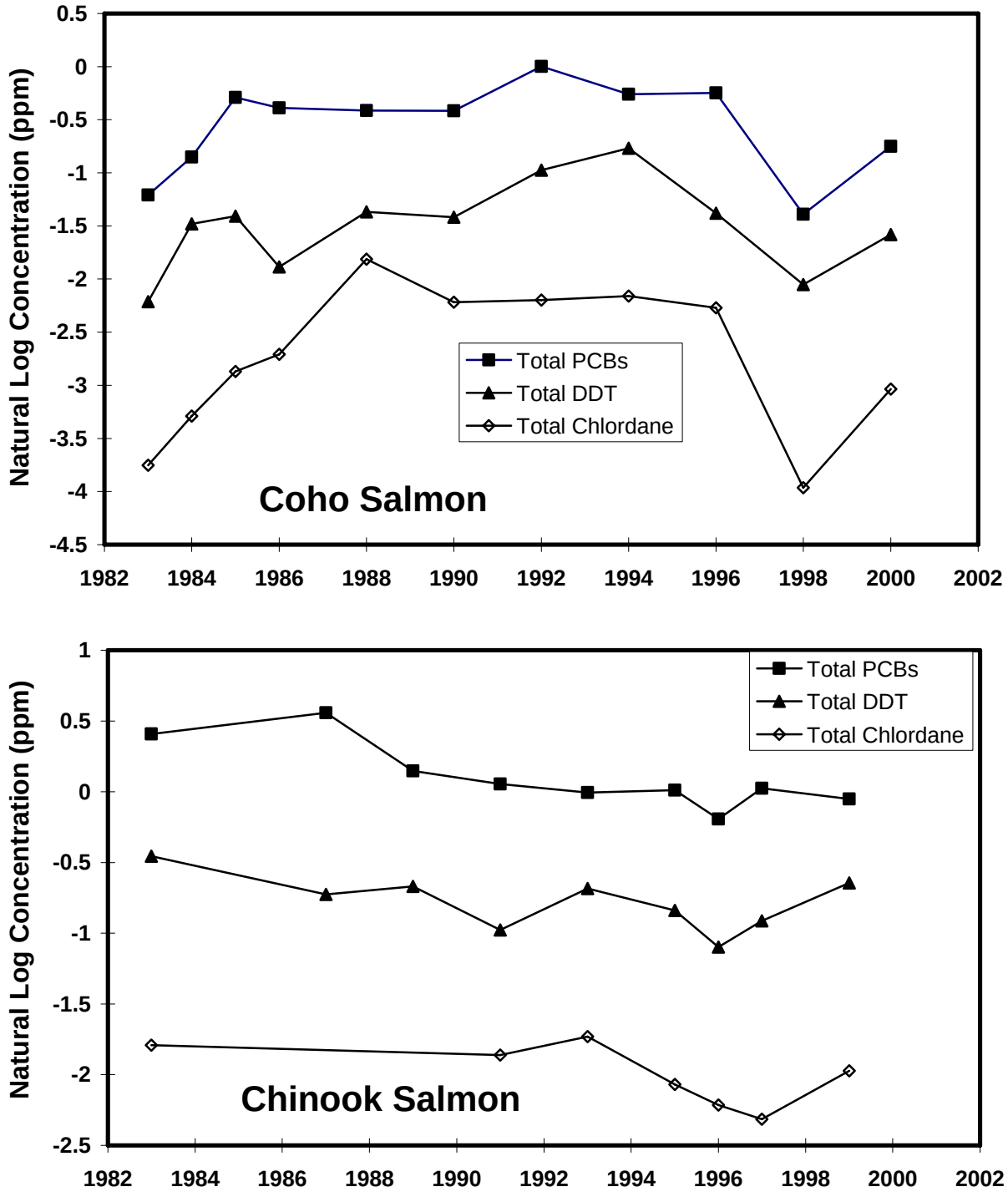
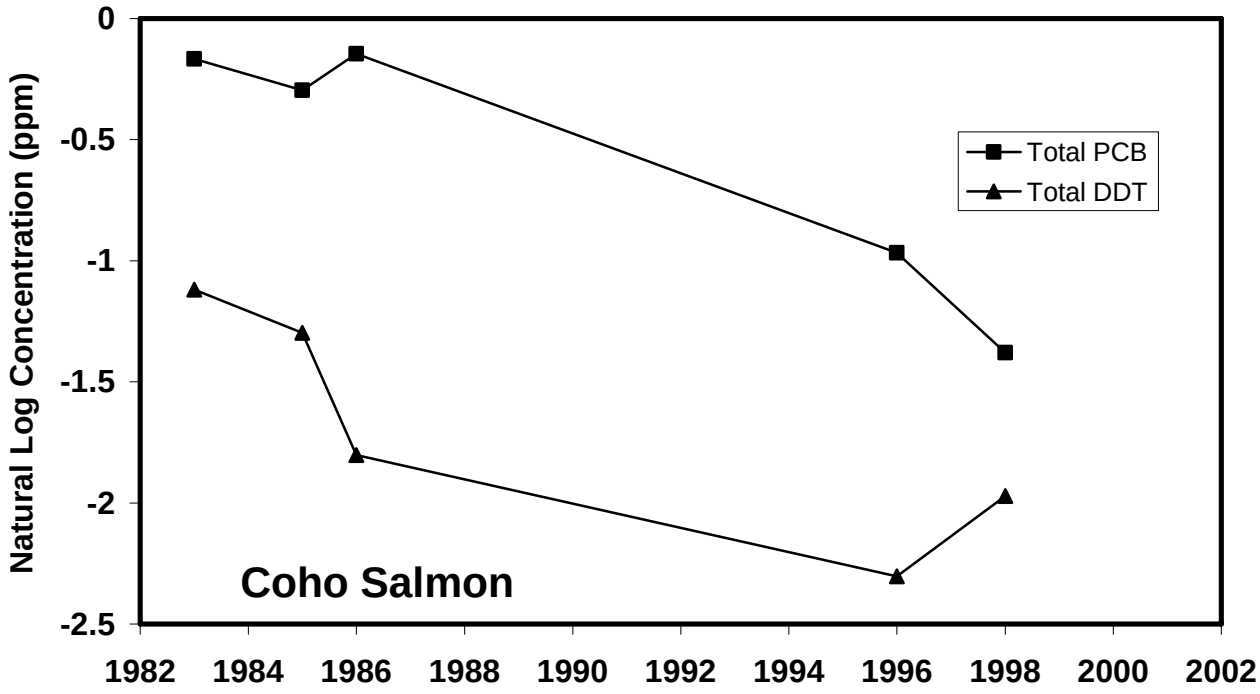


Figure 87. **Natural log of average total PCB, total DDT and total chlordane concentrations in coho and chinook salmon fillet samples from Lake Michigan.**



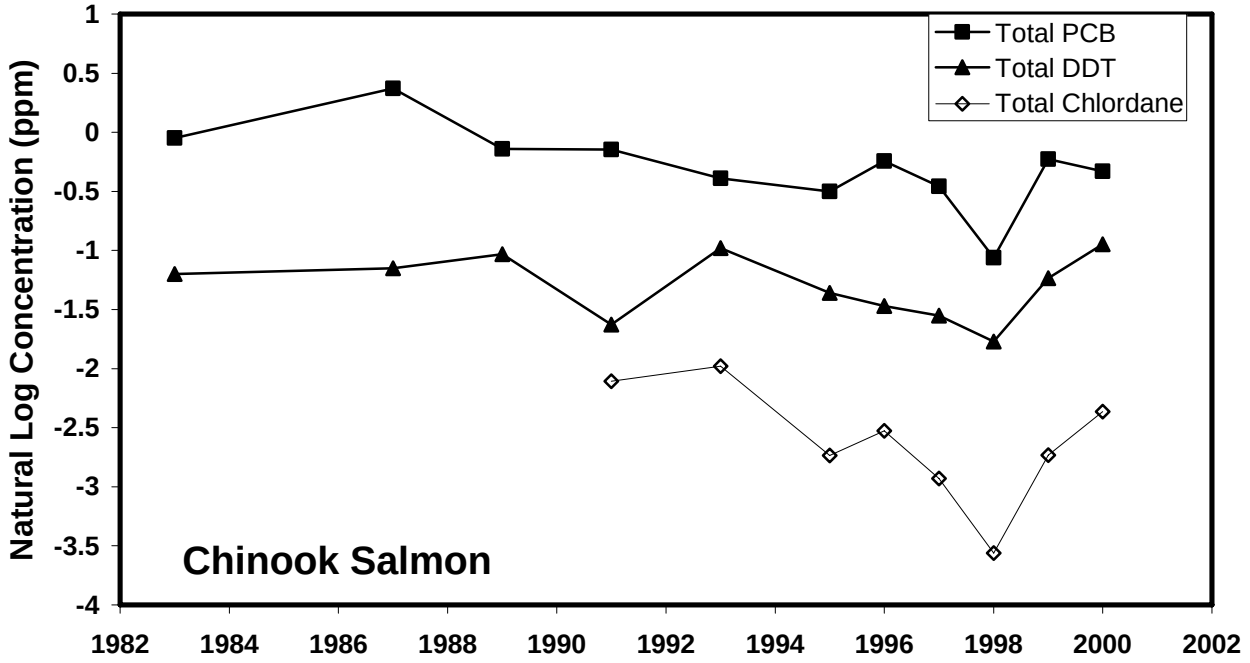


Figure 88. **Natural log of average total PCB, total DDT and total chlordane concentrations in coho and chinook salmon fillet samples from Lake Huron.**

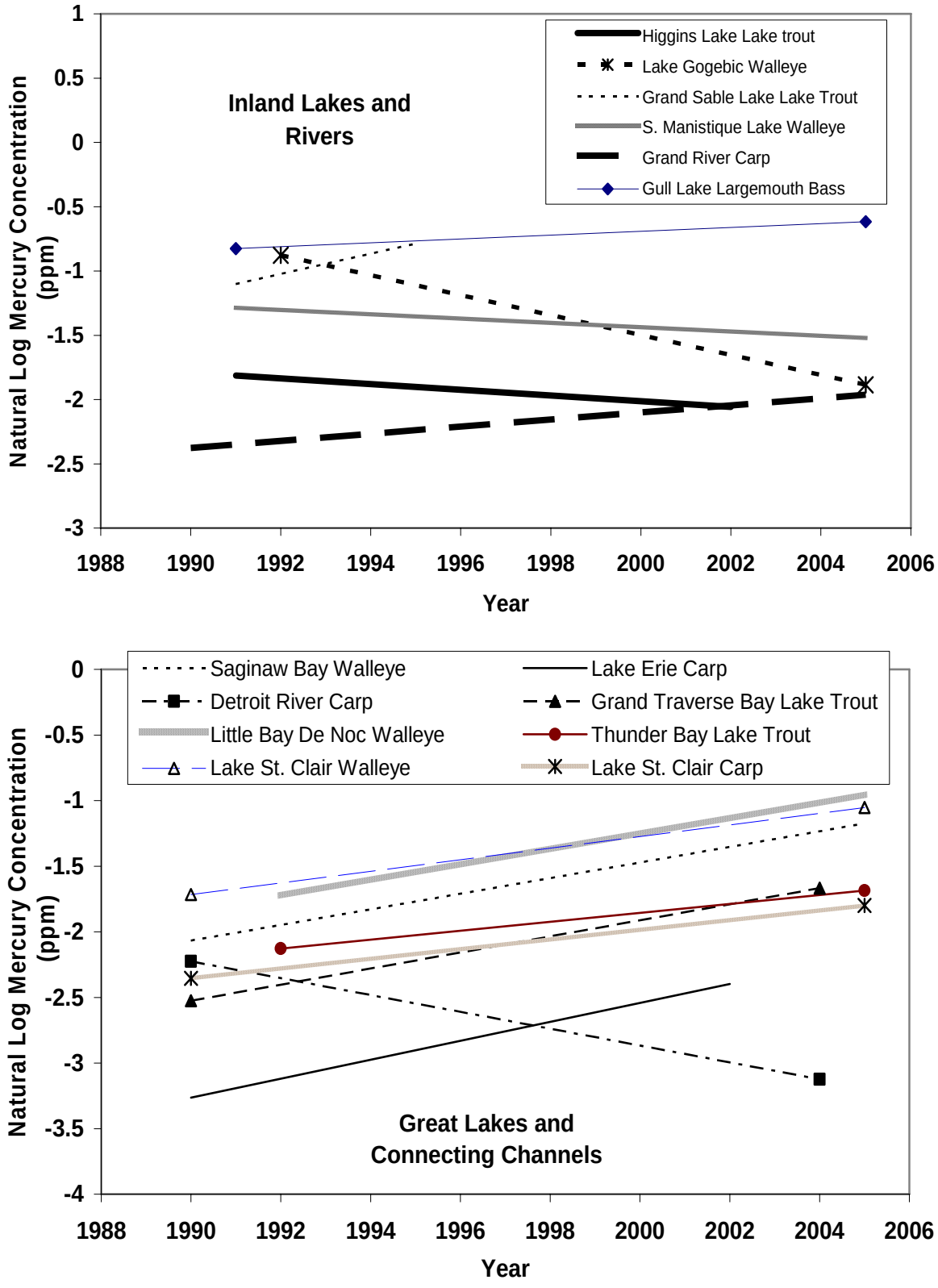


Figure 89. **Temporal changes in mercury concentrations at selected whole-fish trend monitoring sites.**

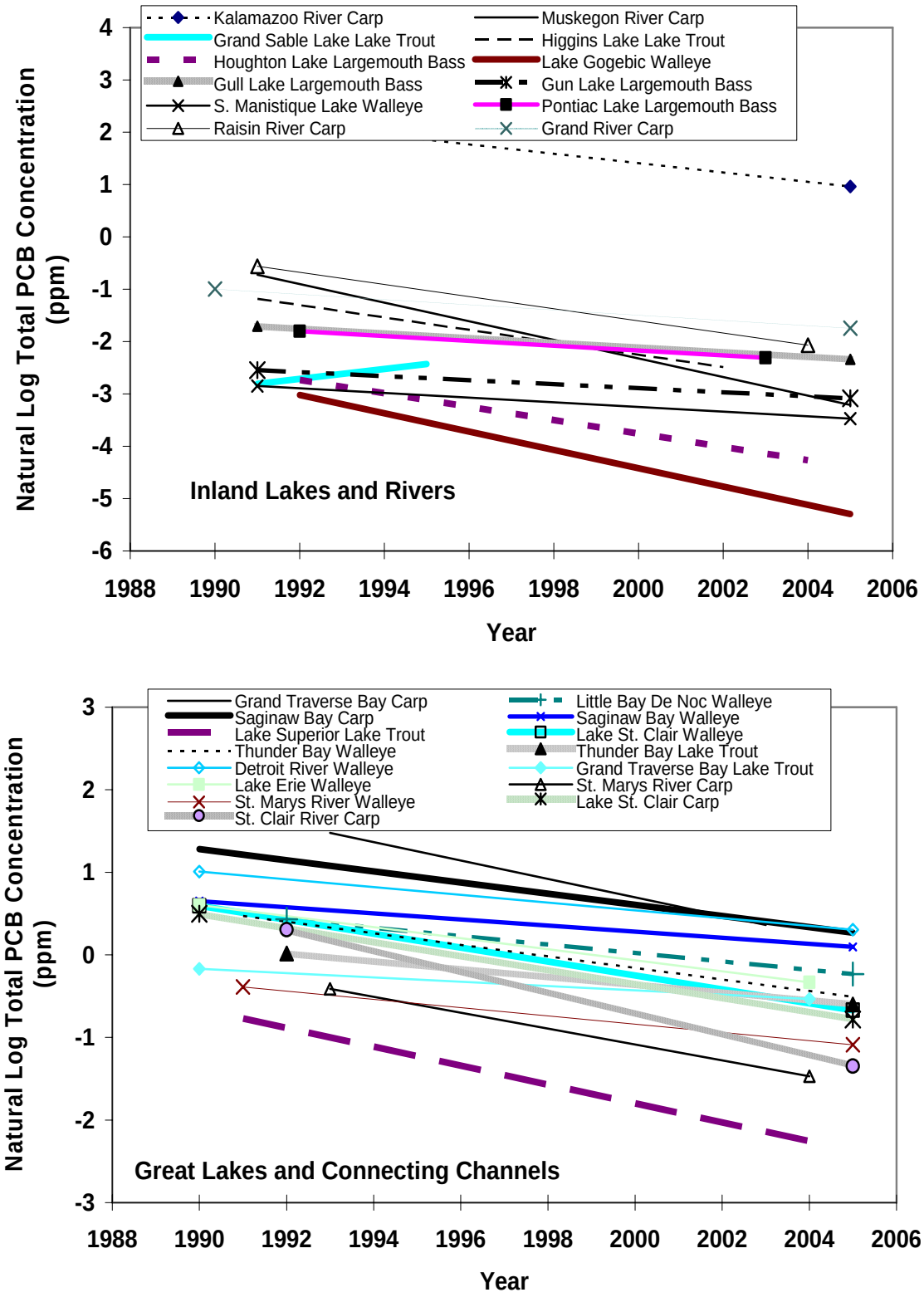
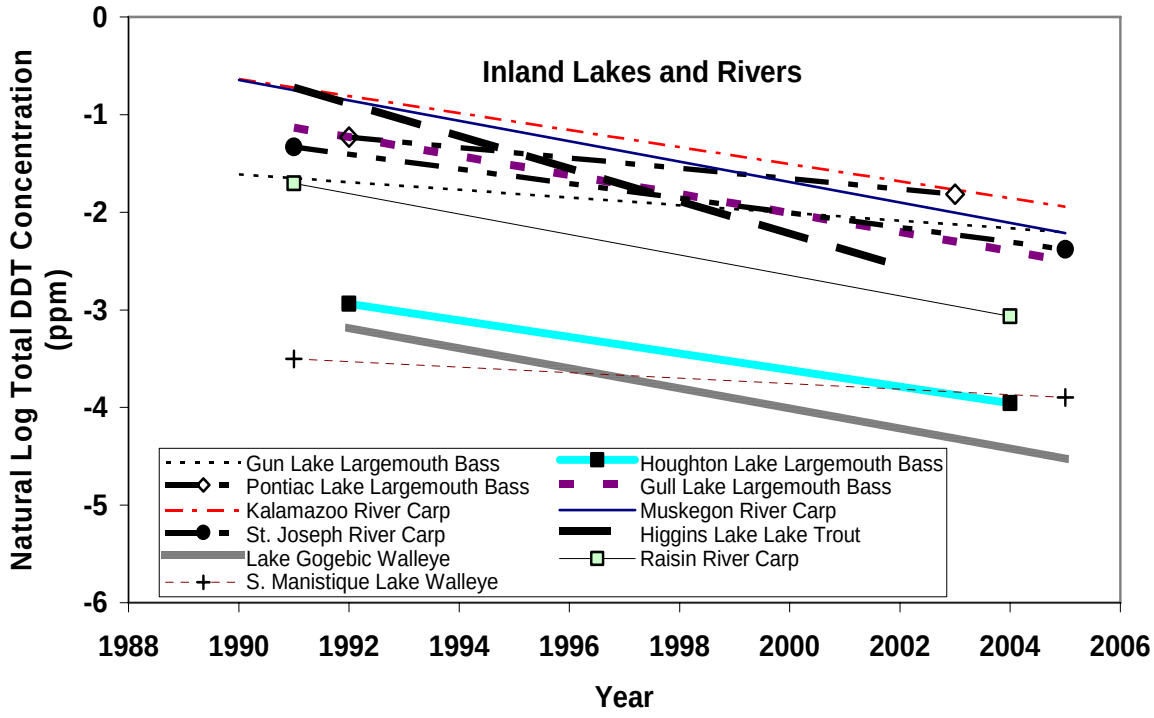


Figure 90. **Temporal changes in total PCB concentrations at selected whole-fish trend monitoring sites.**



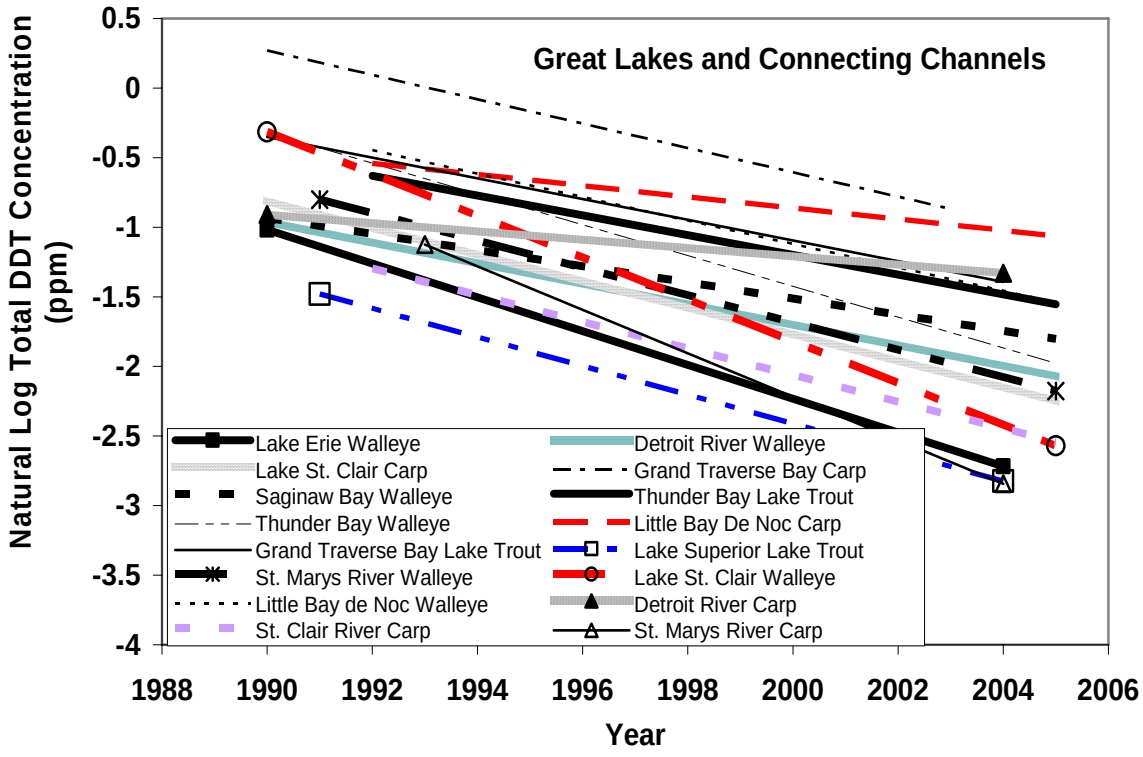


Figure 91. **Temporal changes in total DDT concentrations at selected whole-fish trend monitoring sites.**

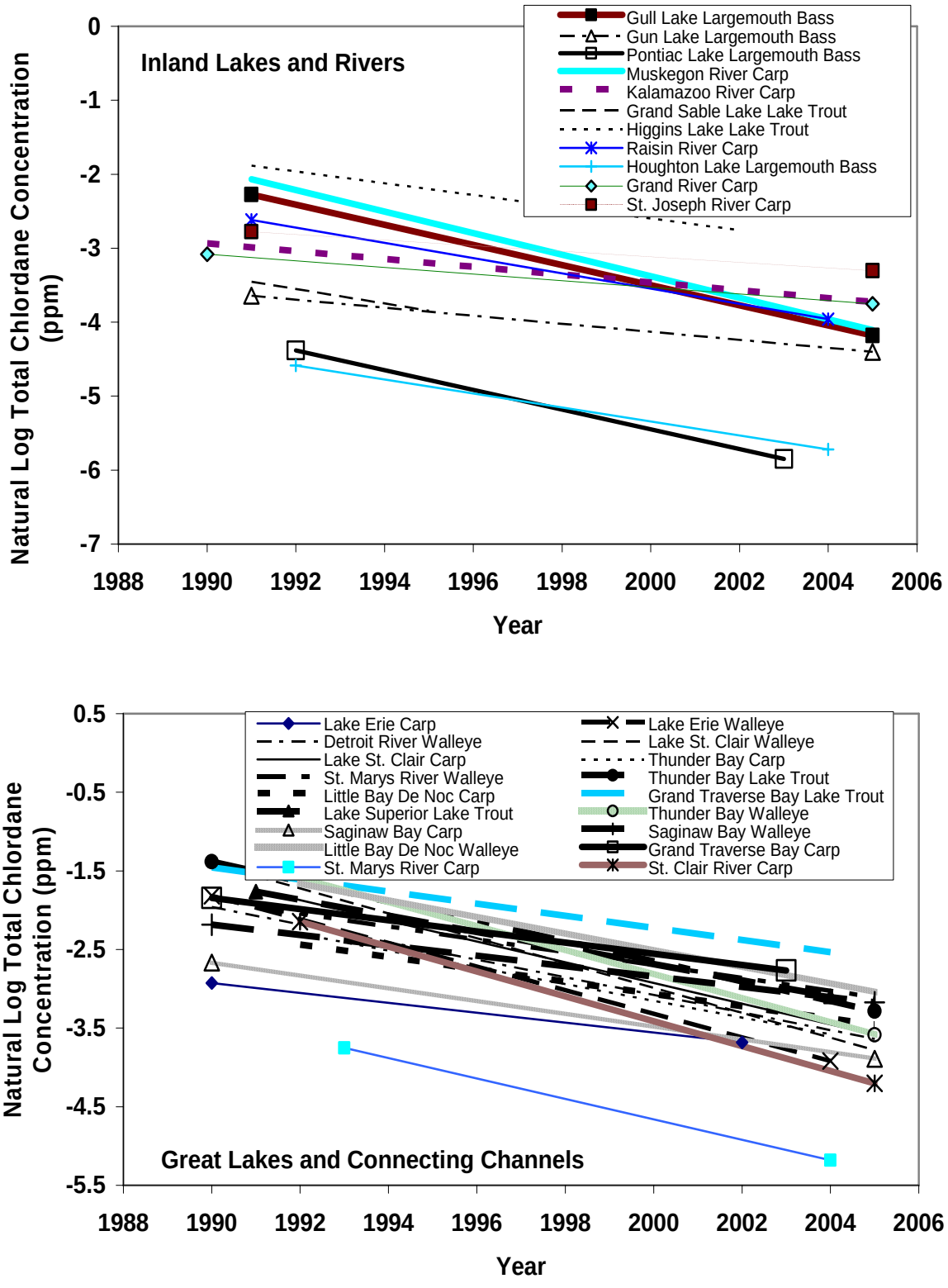


Figure 92. **Temporal changes in total chlordane concentrations at selected whole-fish trend monitoring sites.**

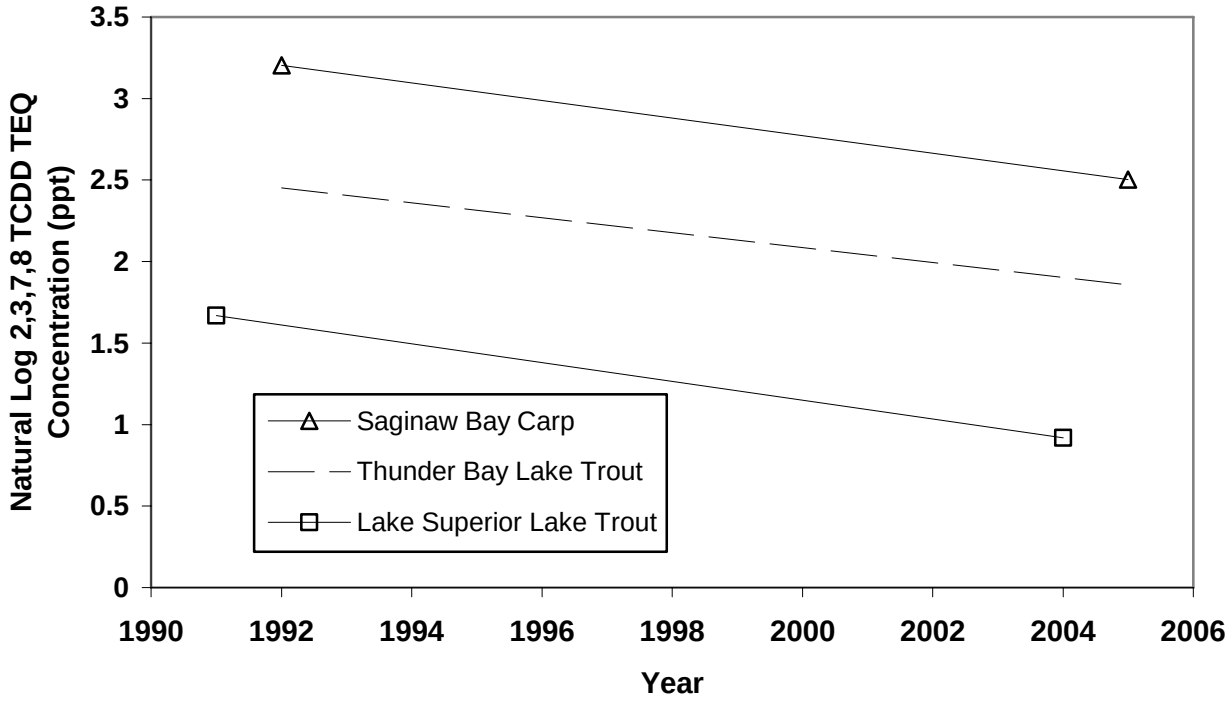


Figure 93. **Temporal changes in 2,3,7,8 TCDD TEQ concentrations at selected whole-fish trend monitoring sites.**

APPENDIX A

INVENTORY OF FISH CONTAMINANT MONITORING SITES AND SPECIES; 1980-2005

Waterbody	Location	Visit ID#	Date	Species
Adrian Lake	Lenawee County	90007	Jun/13/1990	Carp, Northern Pike
Antoine Lake	Dickinson County	88004	May/24/1988	Largemouth Bass, Smallmouth Bass, Walleye
Antoine Lake	Dickinson County	2005001	Nov/10/2005	Northern Pike, Walleye
Arbutus Lake	Grand Traverse County	93066	May/11/1993	Northern Pike
Au Gres River	Au Gres, river mouth	91002	Sep/03/1991	Channel Catfish
Au Sable River	Alcona Dam Pond	2003002	Jun/10/2003	Carp, Northern Pike, Walleye
Au Sable River	Chase River Road	1998136	Aug/25/1998	Brown Trout, White Sucker
Au Sable River	Oscoda	86037	Jul/31/1986	Carp
Au Sable River	Oscoda	97001	May/21/1997	Carp, Walleye
Au Sable River	Oscoda	1999001	Sep/20/1999	Carp, Walleye
Au Sable River	Oscoda, river mouth	91003	Sep/03/1991	Channel Catfish
Au Sable River	Oscoda, river mouth	96002	Aug/19/1996	Channel Catfish
Au Sable River	Thendara Road	1998144	Sep/08/1998	Brown Trout, White Sucker
Au Sable River, Middle Branch	Alcona County, above Alcona Pond	1998073	May/20/1998	Walleye, White Sucker
Au Sable River, North Branch	Lovells	96003	Sep/10/1996	Brown Trout
Au Sable River, North Branch	Otsego County, Dam #2	88039	Nov/03/1988	Brown Trout
Au Train Basin	Alger County	90060	Aug/30/1990	Northern Pike, Yellow Perch
Au Train Lake	Alger County	87003	Apr/14/1987	Northern Pike, Walleye
Au Train Lake	Alger County	93048	May/11/1993	Northern Pike, Walleye
Austin Lake	Kalamazoo County	93091	May/04/1993	Carp, Largemouth Bass
Austin Lake	Kalamazoo County	2003154	Jul/21/2003	Carp, Largemouth Bass, Yellow Bullhead
Bad River	Saginaw County	94034	Aug/30/1994	Channel Catfish, Northern Pike
Bad River	Saginaw County	2004003	Jun/23/2004	Carp, Channel Catfish, Northern Pike
Baldwin River	Near M-37	2003005	Jul/16/2003	Channel Catfish
Baldwin River	near M-37	2005004	Aug/18/2005	Brown Trout
Barton Lake	Kalamazoo County	91057	Oct/01/1991	Carp, Largemouth Bass, Northern Pike
Bass Lake	Grand Traverse County	95063	Jun/20/1995	Bluegill, Northern Pike, Yellow Perch
Battle Creek River	Battle Creek, Division St.	91004	Oct/24/1991	Carp, Smallmouth Bass
Battle Creek River	Battle Creek, Division St.	2004004	Jun/10/2004	Carp, Smallmouth Bass
Bear Lake	Kalkaska County	87036	Jun/24/1987	Brown Trout, Smallmouth Bass
Bear Lake	Muskegon County	86062	Oct/29/1986	Carp, Largemouth Bass, Northern Pike
Bear Lake	Muskegon County	93002	Nov/02/1993	Northern Pike, Walleye
Bear River	Emmet County	1998006	Aug/04/1998	Brown Trout, White Sucker
Beatons Lake	Gogebic County	87005	Apr/28/1987	Largemouth Bass, Rainbow Trout
Beaufort Lake	Baraga County	87039	Jun/17/1987	Northern Pike, Walleye
Beaver Lake	Alger County	2003150	Aug/28/2003	Walleye, Yellow Perch
Beaver Lake	Alpena County	87022	Jun/03/1987	Northern Pike, Smallmouth Bass
Bellaire Lake	Antrim County	87095	Sep/16/1987	Splake, Walleye
Belle River	Marine City	97002	Sep/17/1997	Channel Catfish
Big Blue Lake	Muskegon County	88054	Oct/06/1988	Largemouth Bass, Northern Pike
Big Creek, West Branch	Crawford County, County Road 612	88059	Nov/03/1988	Brown Trout
Big Portage Lake	Jackson County	89042	May/23/1989	Black Crappie, Largemouth Bass, Northern Pike
Big Seven Lake (Seven Lakes)	Oakland County	2004133	May/18/2004	Largemouth Bass
Big Shag Lake	Marquette County	2001003	May/01/2001	Northern Pike

Waterbody	Location	Visit ID#	Date	Species
Big South Branch Pere Marquette River	Walhalla Road	2003007	Jul/16/2003	Channel Catfish
Bills Lake	Newaygo County	88055	Oct/05/1988	Largemouth Bass, Walleye
Bird Lake	Hillsdale County	87019	May/27/1987	Bluegill, Northern Pike, Yellow Perch
Bishop Lake	Livingston County	87014	May/12/1987	Largemouth Bass, Northern Pike
Bishop Lake	Livingston County	89010	Jun/28/1989	Largemouth Bass, Northern Pike
Black Creek	Lenawee County	91005	Jun/13/1991	Carp
Black Creek	Maple Island Rd	2005006	Jun/29/2005	Channel Catfish
Black Creek	Mill Iron Rd	2005007	Jun/29/2005	Channel Catfish
Black Creek	Mouth	2005008	Jun/29/2005	Channel Catfish
Black Creek	Muskegon County, US-31	87013	May/05/1987	Brown Trout, Carp, White Sucker
Black Lake	Cheboygan County	90052	Feb/01/1989	Lake Sturgeon
Black River	Mouth	2002007	Aug/02/2002	Channel Catfish
Black River	Port Huron, river mouth	93003	Aug/31/1993	Channel Catfish
Black River	Sanilac County, Croswell Impoundment	89017	Apr/20/1989	Carp
Black River	South Haven	92016	Aug/25/1992	Carp, Northern Pike
Black River, South Branch	Downstream of Bangor Dam	89020	Jul/07/1989	Carp, Largemouth Bass, Northern Pike, Rock Bass, White Sucker
Black River, South Branch	Downstream of Bangor Dam	2002008	Sep/23/2002	Carp, Northern Pike, White Sucker
Black River, South Branch	Upstream of Bangor Dam	2002106	Sep/23/2002	Carp, Northern Pike, White Sucker
Boardman Lake	Grand Traverse County	91006	Sep/26/1991	Northern Pike, Walleye, White Sucker
Boardman River	Beitner Rd	2003011	Jul/17/2003	Channel Catfish
Boardman River	Eighth St Bridge	2003012	Jul/17/2003	Channel Catfish
Boardman River	Union Street, downstream WWTP	2003013	Jul/17/2003	Channel Catfish
Bob Lake	Houghton County	2001134	Oct/03/2001	Walleye
Boot Lake	Schoolcraft County	2004007	Jun/23/2004	Walleye
Boston Pond	Houghton County	2000105	Jul/11/2000	White Sucker, Yellow Perch
Boyne River	Charlevoix County	1998011	Aug/05/1998	Brown Trout, White Sucker
Brevoort Lake	Mackinac County	89033	May/01/1989	Rock Bass, Walleye
Bristol Lake	Barry County	2002009	May/15/2002	Largemouth Bass, White Sucker
Burt Lake	Cheboygan County	90061	May/07/1990	Northern Pike, Walleye
Burt Lake	Cheboygan County	2001005	Oct/10/2001	Walleye, White Sucker
Cable Lake	Iron County	88005	May/26/1988	Largemouth Bass, Walleye
Camp Lake	Kent County	2003015	May/21/2003	Brown Bullhead, Largemouth Bass, Northern Pike
Caribou Lake	Chippewa County	86004	May/21/1986	Rock Bass, Walleye
Carney Lake	Dickinson County	89031	May/08/1989	Northern Pike, Walleye
Carp Creek	u/s Deer Lake	2005013	Aug/25/2005	Brook Trout, White Sucker
Carp Lake	Chippewa County	87089	Oct/23/1987	Northern Pike, Walleye
Carp River	Carp River Basin	1999003	Aug/20/1999	Brook Trout, Northern Pike
Carp River	Eagle Mills Pump House	88068	Oct/06/1988	Northern Pike, Yellow Perch
Carp River	Eagle Mills Pump House	93074	Jul/23/1993	Brook Trout, Northern Pike
Carp River	Landfill Rd.	2004009	Aug/18/2004	Brook Trout
Carp River	M-35	84012	Sep/27/1984	Brook Trout, White Sucker, Yellow Perch
Carp River	M-35	2004010	Aug/17/2004	Brook Trout, White Sucker
Cary Lake	Branch County	2001140	Oct/02/2001	Largemouth Bass, White Sucker

Waterbody	Location	Visit ID#	Date	Species
Cass Lake	Oakland County	91007	Sep/26/1991	Northern Pike, Smallmouth Bass, Walleye
Cass River	Above Caro	88008	May/30/1988	Carp, Northern Pike
Cass River	Above Caro	2005014	Aug/09/2005	Redhorse Sucker, Rock Bass
Cass River	Bridgeport	85003	Aug/29/1985	Black Bullhead, Channel Catfish
Cass River	Bridgeport	92035	Jul/21/1992	Carp, Channel Catfish, Largemouth Bass, Northern Pike
Cass River	Bridgeport	2004011	Jun/24/2004	Carp, Channel Catfish
Cass River	Caro Impoundment	1998019	Oct/27/1998	Carp, Largemouth Bass
Cass River	Saginaw County, Dixie Highway	85039	Jan/31/1985	Carp, Freshwater Drum, Smallmouth Bass
Cass River	Saginaw County, M-13	88025	Aug/02/1988	Channel Catfish
Cass River	Saginaw County, M-13	2002024	Jul/16/2002	Channel Catfish
Cass River	Tuscola County, above Frankenmuth	88009	Jun/07/1988	Redhorse Sucker, Rock Bass, Smallmouth Bass
Cedar Lake	Alcona County	90067	Oct/09/1990	Largemouth Bass, Northern Pike
Cedar River	Antrim County	1998020	Aug/17/1998	Brown Trout, White Sucker
Chaney Lake	Gogebic County	87037	Jun/08/1987	Black Crappie, Northern Pike
Chaney Lake	Gogebic County	93049	Jun/03/1993	Northern Pike, Yellow Perch
Chaney Lake	Gogebic County	1998147	Oct/01/1998	Northern Pike, Walleye
Chaney Lake	Gogebic County	2000003	Apr/26/2000	Northern Pike, Walleye, Yellow Perch
Cheboyganing Creek	Saginaw County	89058	Aug/02/1989	Carp, Northern Pike
Cheboyganing Creek	Saginaw County	94035	Aug/01/1994	Carp
Cheboyganing Creek	Saginaw County	2004013	Aug/09/2004	Carp
Chenango Lake	Livingston County	2003017	Oct/16/2003	Largemouth Bass, Yellow Bullhead
Chicagon Lake	Iron County	86006	May/22/1986	Rock Bass, Smallmouth Bass, Walleye
Chicagon Lake	Iron County	94022	Apr/27/1994	Walleye
Chicagon Lake	Iron County	2001007	Nov/22/2000	Lake Whitefish
Chippewa River	9 Mile Road	2000004	Jul/20/2000	Channel Catfish
Chippewa River	Midland County	84007	Sep/08/1984	Black Crappie, Channel Catfish, Redhorse Sucker, Smallmouth Bass, White Sucker
Chippewa River	Midland County, M-20	85005	Jun/08/1985	Carp
Chippewa River	Nature Center	2000005	Jul/25/2000	Channel Catfish
Chippewa River	Nature Center	2000071	Sep/18/2000	Redhorse Sucker
Chippewa River	Nature Center	2002015	Jul/16/2002	Channel Catfish
Chippewa River	Upstream of Lake Isabella, Roland/Drew	97005.2	Aug/13/1997	Rock Bass
Chippewa River	Upstream of Lake Isabella, Wyman Road	97005.1	Aug/13/1997	Carp, White Sucker
Cisco Lake	Gogebic County	88030	Jul/11/1988	Northern Pike, Walleye
Cisco Lake	Gogebic County	1999005	Apr/19/1999	Walleye
Cisco Lake	Gogebic County, Cisco Lake Chain	95031	Aug/14/1995	Bluegill, Walleye
Clark Lake	Jackson	88043	Sep/29/1988	Black Crappie, Largemouth Bass, Rock Bass
Clear Spring Lake	Macomb County	1999088	Sep/20/1999	Largemouth Bass
Clifford Lake	Montcalm County	2004014	Jun/15/2004	Largemouth Bass
Clinton River	Mt. Clemens, VFW Hall	2001116	Aug/29/2001	Channel Catfish
Clinton River	Adams Road	2000009	Aug/28/2000	Channel Catfish
Clinton River	Bridgeview Road	1999070	Aug/06/1999	Channel Catfish
Clinton River	Bridgeview Road	2000015	Aug/28/2000	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Clinton River	Cass Road	1999072	Aug/06/1999	Channel Catfish
Clinton River	Crystal Lake	2000007	Aug/28/2000	Channel Catfish
Clinton River	Harris Lake	1999074	Aug/06/1999	Channel Catfish
Clinton River	M-97	2000012	Aug/28/2000	Channel Catfish
Clinton River	Macomb Co above Utica, Avon Road	86044	Aug/26/1986	Carp, Walleye
Clinton River	Macomb County above I-94 overpass	83003	Apr/15/1983	Carp, Walleye, White Sucker
Clinton River	Macomb County above I-94 overpass	97007	Sep/17/1997	Channel Catfish
Clinton River	Macomb County above I-94 overpass	1999071	Aug/06/1999	Channel Catfish
Clinton River	Macomb County above I-94 overpass	2000014	Aug/28/2000	Channel Catfish
Clinton River	Macomb County, Mt. Clemens	83045	Apr/26/1983	Carp
Clinton River	Macomb County, Mt. Clemens	86015	Jun/16/1986	Carp, Largemouth Bass, Smallmouth Bass, Walleye
Clinton River	Moravian/Belleview Road	2000013	Aug/28/2000	Channel Catfish
Clinton River	Mt. Clemens, City Park	2001115	Aug/29/2001	Channel Catfish
Clinton River	Mt. Clemens, Firehouse	2001117	Aug/29/2001	Channel Catfish
Clinton River	Mt. Clemens, Market Street	97006	Sep/17/1997	Channel Catfish
Clinton River	Mt. Clemens, river mouth	89023.1	Aug/29/1989	Channel Catfish
Clinton River	Mt. Clemens, river mouth	92003.1	Aug/17/1992	Channel Catfish
Clinton River	Mt. Clemens, river mouth	96005	Aug/20/1996	Channel Catfish
Clinton River	Mt. Clemens, river mouth	97008	Sep/17/1997	Channel Catfish
Clinton River	Mt. Clemens, river mouth	1999069	Aug/06/1999	Channel Catfish
Clinton River	Mt. Clemens, river mouth	2000016	Aug/28/2000	Channel Catfish
Clinton River	Opdyke Road	2000008	Aug/28/2000	Channel Catfish
Clinton River	Ryan Road, Utica	84014	Sep/23/1984	Carp, White Sucker
Clinton River	Ryan Road, Utica	94003	May/25/1994	Carp, Rock Bass, White Sucker
Clinton River	Ryan Road, Utica	1999073	Aug/06/1999	Channel Catfish
Clinton River	Ryan Road, Utica	2004015	Oct/07/2004	Carp, Northern Pike, Rock Bass, White Sucker
Clinton River	Spillway Mouth	89023.2	Aug/29/1989	Channel Catfish
Clinton River	Spillway Mouth	92003.2	Aug/17/1992	Channel Catfish
Clinton River, North Branch	Macomb County	96006	Jun/17/1996	Rock Bass, Smallmouth Bass
Coldwater Lake	Branch County	88061	Oct/31/1988	Largemouth Bass, Northern Pike, Rock Bass
Coldwater Lake	Branch County	93067	Oct/04/1993	Largemouth Bass, Northern Pike
Coldwater Lake	Branch County	94019	Apr/12/1994	Bluegill, Largemouth Bass, Northern Pike
Coldwater Lake	Isabella County	89061	Aug/09/1989	Largemouth Bass, Walleye
Coldwater River	Brown Road	1998021	Jul/14/1998	White Sucker
Coldwater River	Union City	2003019	Jul/16/2003	Channel Catfish
Craig Lake	Baraga County	89074	Aug/23/1989	Walleye
Craig Lake	Baraga County	91028	Jun/04/1991	Northern Pike, Walleye
Craig Lake	Baraga County	2005015	Nov/08/2005	Black Crappie, Northern Pike, Walleye, White Sucker
Crego Park Pond	Lansing	86033	Jul/29/1986	Black Bullhead, Bluegill, Goldfish
Crooked Lake	Barry County	2003020	Sep/19/2003	Brown Bullhead, Largemouth Bass
Crooked Lake	Emmet County	89057	Jun/04/1989	Largemouth Bass, Walleye
Crystal Lake	Benzie County	89077	Aug/01/1989	Brown Trout, Lake Trout, Yellow Perch

Waterbody	Location	Visit ID#	Date	Species
Crystal Lake	Benzie County	97061	Jul/23/1997	Lake Trout, White Sucker
Crystal Lake	Benzie County	2000017	Sep/06/2000	Lake Trout, White Sucker
Dead River	Forestville Basin	96007	Jun/06/1996	Smallmouth Bass, Walleye
Dead River	Forestville Basin	97075	Sep/08/1997	Smallmouth Bass, Walleye
Dead River	Forestville Basin	2005017	Jun/01/2005	Northern Pike, Walleye
Deer Lake	Alger County	2004019	Jun/02/2004	Northern Pike
Deer Lake	Charlevoix County	2003021	Oct/30/2003	Largemouth Bass, Northern Pike
Deer Lake	Marquette County	84011	Oct/09/1984	Northern Pike, White Sucker, Yellow Perch
Deer Lake	Marquette County	87099	Oct/26/1987	Brown Bullhead, Northern Pike, Walleye, Yellow Perch
Deer Lake	Marquette County	88067	Oct/06/1988	Brook Trout, Northern Pike, Yellow Perch
Deer Lake	Marquette County	91032	Nov/02/1990	Walleye
Deer Lake	Marquette County	93083	Sep/14/1993	Northern Pike, Walleye
Deer Lake	Marquette County	96008	Oct/02/1996	Walleye
Deer Lake	Marquette County	97070	Oct/02/1997	Northern Pike, Walleye, Yellow Perch
Deer Lake	Marquette County	1998024	Oct/09/1998	Northern Pike, Walleye, Yellow Perch
Deer Lake	Marquette County	1999006	May/04/1999	Northern Pike, Walleye, Yellow Perch
Deer Lake	Marquette County	2001008	May/01/2001	Northern Pike, Walleye, Yellow Perch
Deer Lake	Marquette County	2003161	May/03/2003	Northern Pike, Walleye
DEQ Control	DEQ Control, Grand River u/s 6th St	2003601	Sep/20/2003	Control
DEQ Control	DEQ Control, Kalamazoo River at Trowbridge	2004603	Aug/26/2003	Control
Detroit River	Belle Isle	85009	Jun/19/1985	Carp
Detroit River	Belle Isle	90031	Aug/27/1990	Freshwater Drum, Walleye
Detroit River	Fighting Island	86063	Jun/03/1986	Carp
Detroit River	Gibralter Bay	86011	Jun/03/1986	Carp
Detroit River	Grassy Island	85010	Jun/19/1985	Carp
Detroit River	Grassy Island	86064	Jun/03/1986	Walleye
Detroit River	Grassy Island	90033	Aug/28/1990	Carp, Walleye
Detroit River	Grassy Island	92033	Aug/17/1992	Carp, Walleye
Detroit River	Grassy Island	94018	Aug/25/1994	Carp
Detroit River	Grassy Island	94050	Aug/25/1994	Carp, Walleye
Detroit River	Grassy Island	96009	Jul/12/1996	Carp, Walleye
Detroit River	Grassy Island	1998025	Sep/22/1998	Carp, Walleye
Detroit River	Grassy Island	2001009	Oct/18/2001	Carp, Walleye
Detroit River	Grassy Island	2001010	Oct/30/2001	Walleye
Detroit River	Grassy Island	2004020	Jul/20/2004	Carp, Walleye
Detroit River	Grassy Island	2005018	Jun/22/2005	Walleye
Detroit River	Michigan waters	93068	Apr/01/1993	Lake Sturgeon
Detroit River	Michigan waters	2004021	Jul/20/2004	Carp, Freshwater Drum, Redhorse Sucker, Yellow Perch
Detroit River	Trenton Channel	90032	Aug/30/1990	Carp, Freshwater Drum, Walleye
Detroit River	Trenton Channel	93020	Sep/01/1993	Freshwater Drum, Northern Pike, Redhorse Sucker, Yellow Perch
Detroit River	Wyandotte	1999007	Oct/29/1999	Walleye

Waterbody	Location	Visit ID#	Date	Species
Dinner Lake	Gogebic County	2004024	Jun/11/2004	Black Crappie, Largemouth Bass, Northern Pike, Smallmouth Bass, Walleye
Dowagiac Creek	Dutch Settlement Road	1998027	Sep/02/1998	Brown Trout, White Sucker
Dowagiac River	Cass County, M-51	91008	Jul/18/1991	Carp
Dowagiac River	Cass County, Sink Road	2000020	Sep/18/2000	Carp
Duck Creek	Gogebic County	1998135	Jun/04/1998	Brook Trout, White Sucker
Duck Lake	Calhoun County	94011	May/23/1994	Bluegill, Largemouth Bass, Redear Sunfish, Walleye, Yellow Perch
Duck Lake	Gogebic County	86029	Jul/08/1986	Northern Pike, Rock Bass, Walleye
Duck Lake	Gogebic County	1999009	Apr/22/1999	Walleye
Echo Lake	Grand Isle, Alger County	95060	Jun/21/1995	Northern Pike, Yellow Perch
Elk Lake	Grand Traverse/Antrim County	90023	Sep/12/1990	Lake Trout
Elk Lake	Grand Traverse/Antrim County	96059	Dec/01/1996	Lake Trout
Elk Lake	Grand Traverse/Antrim County	97076	Dec/30/1997	Lake Trout
Ellsworth Lake	Antrim County	85065	Nov/27/1985	Bluegill, Largemouth Bass, Northern Pike, Rock Bass, Yellow Perch
Ellsworth Lake	Antrim County	86009	May/28/1986	Largemouth Bass, Northern Pike, White Sucker
Ellsworth Lake	Antrim County	94063	Jun/09/1994	Brown Bullhead, Largemouth Bass, White Sucker
Emerald Lake	Newaygo County	2004026	Jun/23/2004	Largemouth Bass, Northern Pike
Emily Lake	Houghton County	2002110	Jun/06/2002	Walleye
Emily Lake	Iron County	88006	May/25/1988	Largemouth Bass, Walleye
Erickson Power Plant Pond	Eaton County	86003	May/14/1986	Brown Bullhead, Sunfish, Yellow Perch
Escanaba River	Cataract Basin	2004028	Jul/27/2004	Walleye
Escanaba River	CR 420	2005122	Jun/29/2005	Channel Catfish
Escanaba River	Delta County, between Dams 1 & 2	88047	Oct/04/1988	Northern Pike, White Sucker
Escanaba River	Delta County, between Dams 1 & 2	90071	Nov/13/1990	Northern Pike, White Sucker
Escanaba River	Delta County, between Dams 1 & 2	93075	Aug/12/1993	Northern Pike, Yellow Perch
Escanaba River	Delta County, Dam 3	85029	Jun/26/1985	Rock Bass
Escanaba River	Escanaba, river mouth	86065	Jul/30/1986	Walleye
Escanaba River	Escanaba, river mouth	93032	Jun/02/1993	Carp
Escanaba River	Escanaba, river mouth	93040	Jun/30/1993	Channel Catfish
Escanaba River	Escanaba, river mouth	2005121	Jun/29/2005	Channel Catfish
Escanaba River	Greenwood Reservoir	92045	Jul/30/1992	Black Crappie, Largemouth Bass, Northern Pike
Escanaba River	Greenwood Reservoir	1999077	May/04/1999	Northern Pike
Ess Lake	Montmorency County	2003023	May/29/2003	Northern Pike
Fawn River	St. Joseph County, Stubey Road	90016	Jul/18/1990	Carp, Redhorse Sucker, Smallmouth Bass, White Sucker
Fawn River	St. Joseph County, Stubey Road	2000021	Sep/06/2000	Redhorse Sucker, Rock Bass
Fawn River	St. Joseph County, Stubey Road	2005019	Sep/14/2005	Carp, Smallmouth Bass
Fenner Lake	Allegan County	92072	Aug/04/1992	Carp, Largemouth Bass
First Sister Lake	Washtenaw County	94062.2	Sep/20/1994	Brown Bullhead, White Crappie
Fish Lake	Barry County	91034	Sep/04/1991	Largemouth Bass, Northern Pike

Waterbody	Location	Visit ID#	Date	Species
Fish Lake	Marquette County	88046	Oct/04/1988	Largemouth Bass, Northern Pike, Sunfish, Yellow Perch
Five Lakes	Clare County	91009	Apr/16/1991	Largemouth Bass, Northern Pike
Five Lakes	Clare County	2004131	May/11/2004	Largemouth Bass
Flat River	Belding downstream WWTP	2003028	Aug/20/2003	Channel Catfish
Flat River	Belding upstream WWTP	2003027	Aug/20/2003	Channel Catfish
Flat River	Fallasberg Park, downstream of Belding	1998035	Oct/27/1998	Carp
Flat River	Greenville downstream WWTP	2003026	Aug/20/2003	Channel Catfish
Flat River	Greenville upstream WWTP	2003025	Aug/20/2003	Channel Catfish
Flat River	Ingalls Road, downstream of Belding	1998037	Jul/30/1998	Rock Bass
Flat River	Ingalls Road, downstream of Belding	2003031	Jul/29/2003	Rock Bass, White Sucker
Flat River	Long Lake Road, upstream of Belding	1998036	Jul/30/1998	Rock Bass
Flat River	Lowell	2001017	Jul/23/2001	Channel Catfish
Flat River	Lowell downstream WWTP	2003030	Aug/20/2003	Channel Catfish
Flat River	Lowell upstream WWTP	2003029	Aug/20/2003	Channel Catfish
Flat River	Miller Rd, upstream of Greenville	2003032	Jul/29/2003	Rock Bass, White Sucker
Fletcher Pond	Alpena County	2005020	May/16/2005	Northern Pike
Flint River	Above Flint @ Bray	2003036	Aug/21/2003	Channel Catfish
Flint River	Below Flint	2003033	Aug/21/2003	Channel Catfish
Flint River	Birch Run Road	93005	Aug/30/1993	Carp
Flint River	Downstream Ragnone WWTP	2003038	Aug/21/2003	Channel Catfish
Flint River	Flushing	1998038	Oct/08/1998	Carp, Smallmouth Bass
Flint River	Genessee County, Elms Road	85030	Jun/17/1985	Black Crappie, Carp, Walleye
Flint River	Holloway Reservoir	89041	May/18/1989	Black Crappie, Channel Catfish, Largemouth Bass, Smallmouth Bass
Flint River	Klam Road	2003034	Aug/21/2003	Channel Catfish
Flint River	M-15	2003035	Aug/21/2003	Channel Catfish
Flint River	Mott Reservoir	96011	Apr/16/1996	Carp, Walleye
Flint River	Saginaw County, river mouth	88022	Aug/02/1988	Channel Catfish
Flint River	Saginaw County, river mouth	2002023	Jul/16/2002	Channel Catfish
Flint River	Saginaw County, river mouth	2003039	Aug/21/2003	Channel Catfish
Flint River	Upstream Ragnone WWTP	2003037	Aug/21/2003	Channel Catfish
Fortune Lake	Iron County	90012	May/29/1990	Largemouth Bass, Smallmouth Bass
Four Mile Lake	Washtenaw County	2000022	May/12/2000	Northern Pike
Fremont Lake	Newaygo County	90062	Oct/26/1990	Carp
Fremont Lake	Newaygo County	2005021	Jun/22/2005	Carp, Largemouth Bass
Frenchman Lake	Chippewa County	2004029	May/26/2004	Northern Pike
Fumee Lake	Dickinson County	90011	May/25/1990	Smallmouth Bass
Galien River	Mouth	2002031	Aug/02/2002	Channel Catfish
Galien River	New Buffalo	92017	Aug/06/1992	Carp, Largemouth Bass, Rock Bass
Gaylanta Lake	Montmorency County	2003040	May/08/2003	Northern Pike
Glen Lake	Leelanau County	90053	Oct/18/1990	Lake Trout, Smallmouth Bass

Waterbody	Location	Visit ID#	Date	Species
Goose Lake	Marquette County	88045	Oct/06/1988	Northern Pike, Walleye, Yellow Perch
Goose Lake	Marquette County	2001011	May/01/2001	Northern Pike, Walleye, Yellow Perch
Grand Lake	Presque Isle County	95015	May/22/1995	Rock Bass, Smallmouth Bass, Walleye
Grand River	Below Jackson, Thompkins Road	2001014	Jul/23/2001	Channel Catfish
Grand River	Below Lansing, Clintonia Road	2001016	Jul/23/2001	Channel Catfish
Grand River	Clinton County, State Road	83053	May/11/1983	Carp, Largemouth Bass, Smallmouth Bass, Yellow Bullhead
Grand River	Clinton County, State Road	84006	Aug/29/1984	Carp, Largemouth Bass, Smallmouth Bass
Grand River	Clinton County, State Road	85004	Jul/24/1985	Carp
Grand River	Clinton County, State Road	90022	Sep/06/1990	Carp, Largemouth Bass, Smallmouth Bass
Grand River	Downstream of Dimondale	2004147	Jun/16/2004	Northern Pike
Grand River	Eaton Rapids, Gale Road/Waverly Road	2001021	Oct/03/2001	Carp, Largemouth Bass, Walleye, White Sucker
Grand River	Eaton Rapids, Gale Road/Waverly Road	2004146	Jul/01/2004	Channel Catfish, Northern Pike, Smallmouth Bass, Walleye
Grand River	Grand Haven, river mouth	86039	Aug/04/1986	Carp, Largemouth Bass, Walleye
Grand River	Grand Haven, river mouth	90018	Sep/04/1990	Channel Catfish
Grand River	Grand Haven, river mouth	93036	Jun/09/1993	Carp
Grand River	Grand Haven, river mouth	93043	Jul/01/1993	Channel Catfish
Grand River	Grand Haven, river mouth	2001020	Jul/23/2001	Channel Catfish
Grand River	Grand Rapids, below 6th Street dam	1998148	Mar/05/1998	Northern Pike, Redhorse Sucker, Walleye
Grand River	Jackson, above Jackson WWTP	90025	Sep/05/1990	Channel Catfish
Grand River	Jackson, below Jackson WWTP	90024	Aug/08/1990	Channel Catfish
Grand River	Kent County, above 6th St. Dam	90030	Aug/22/1990	Carp
Grand River	Kent County, above 6th St. Dam	92053	Oct/01/1992	Carp
Grand River	Kent County, above 6th St. Dam	94002	Jun/23/1994	Carp
Grand River	Kent County, above 6th St. Dam	1999011	Mar/17/1999	Northern Pike
Grand River	Kent County, above 6th St. Dam	2000024	Oct/25/2000	Carp
Grand River	Kent County, above 6th St. Dam	2003042	Sep/20/2003	Carp
Grand River	Kent County, above 6th St. Dam	2005023	Jul/14/2005	Carp
Grand River	Kent County, below Grand Rapids	90029	Aug/23/1990	Carp
Grand River	Kent County, below Grand Rapids	91036	Mar/20/1991	Walleye
Grand River	M-21	2001018	Jul/23/2001	Channel Catfish
Grand River	Maple Grove Road	90021	Aug/14/1990	Carp, Walleye
Grand River	Maple Grove Road	2002113	Oct/03/2002	Northern Pike
Grand River	Moores River Impoundment	89054	Jul/27/1989	Channel Catfish, Largemouth Bass, Northern Pike, Smallmouth Bass, Walleye
Grand River	Moores River Impoundment	96013	May/07/1996	Carp, Largemouth Bass

Waterbody	Location	Visit ID#	Date	Species
Grand River	Moores River Impoundment	2004148	Jun/09/2004	Northern Pike
Grand River	Portland Impoundment	92051	Oct/01/1992	Carp
Grand River	Upstream Jackson, Reed Road	2001013	Jul/23/2001	Channel Catfish
Grand River	Upstream Knapp St. Bridge	96058	Aug/15/1996	Unionidae
Grand River	Upstream M-21	96057	Aug/15/1996	Unionidae
Grand Sable Lake	Alger County	87088	Oct/22/1987	Lake Trout, Northern Pike
Grand Sable Lake	Alger County	91010	May/20/1991	Lake Trout
Grand Sable Lake	Alger County	93006	Jun/01/1993	Lake Trout
Grand Sable Lake	Alger County	95047	Sep/07/1995	Lake Trout
Gratiot Lake	Keweenaw County	87038	Jan/01/1987	Rock Bass, Smallmouth Bass
Gratiot Lake	Keweenaw County	2005025	May/25/2005	Northern Pike, Smallmouth Bass, Walleye
Green Lake	Grand Traverse County	93065	May/11/1993	Northern Pike, White Sucker
Green Lake	Grand Traverse County	2003139	Jun/04/2003	Lake Trout
Gull Lake	Kalamazoo County	89073	Nov/01/1989	Largemouth Bass, Northern Pike
Gull Lake	Kalamazoo County	91058	Sep/12/1991	Largemouth Bass
Gull Lake	Kalamazoo County	93063	Jun/10/1993	Largemouth Bass
Gull Lake	Kalamazoo County	93064	Jun/10/1993	Largemouth Bass, Northern Pike
Gull Lake	Kalamazoo County	95035	Jun/01/1995	Largemouth Bass
Gull Lake	Kalamazoo County	97011	Jun/15/1997	Largemouth Bass
Gull Lake	Kalamazoo County	2000025	Jul/11/2000	Largemouth Bass
Gull Lake	Kalamazoo County	2002034	Jun/30/2002	Largemouth Bass
Gull Lake	Kalamazoo County	2005026	Aug/09/2005	Largemouth Bass
Gulliver Lake	Schoolcraft County	90015	May/15/1990	Northern Pike, Smallmouth Bass, Walleye
Gun Lake	Barry County	90006	Jul/01/1990	Largemouth Bass
Gun Lake	Barry County	92066	Jun/15/1992	Largemouth Bass
Gun Lake	Barry County	94023	Jul/17/1994	Largemouth Bass
Gun Lake	Barry County	97012	Jul/17/1997	Largemouth Bass
Gun Lake	Barry County	2000026	Jul/25/2000	Largemouth Bass
Gun Lake	Barry County	2002035	Jun/06/2002	Largemouth Bass
Gun Lake	Barry County	2005027	Jul/07/2005	Largemouth Bass
Hagerman Lake	Iron County	88050	Oct/12/1988	Smallmouth Bass, Walleye
Hamilton Lake	Dickinson County	94024	Apr/19/1994	Northern Pike, Walleye
Hamlin Lake	Mason County	90070	Feb/05/1991	Black Crappie, Northern Pike
Hanbury Lake	Dickinson County	2005028	May/02/2005	Largemouth Bass
Hardwood Lake	Ogemaw County	2004034	Jun/02/2004	Northern Pike
Hawk Lake	Oakland County	90004	May/01/1990	Brown Bullhead, Northern Pike
Heron Lake	Oakland County	2000027	Jul/08/2000	Largemouth Bass
Hersey River	Osceola County, Diamond Road	85035	May/15/1985	Brown Trout, White Sucker
Hersey River	Osceola County, Reed City	86013	Jun/09/1986	Brown Trout, Northern Pike, White Sucker
Hersey River	Osceola County, Reed City	1998041	Jul/08/1998	Brown Trout
Hess Lake	Newaygo County	97062	Aug/26/1997	Carp, Largemouth Bass, Mirror Carp
Higgins Lake	Roscommon County	88038	Oct/27/1988	Brown Trout, Lake Herring, Lake Trout
Higgins Lake	Roscommon County	91001	May/02/1991	Lake Trout
Higgins Lake	Roscommon County	95057.1	Oct/31/1995	Lake Herring, Lake Trout
Higgins Lake	Roscommon County	95057.2	Oct/31/1995	Lake Trout

Waterbody	Location	Visit ID#	Date	Species
Higgins Lake	Roscommon County	97013	Oct/22/1997	Lake Trout, Yellow Perch
Higgins Lake	Roscommon County	1998042	Nov/25/1998	Lake Trout
Higgins Lake	Roscommon County	2000028	Oct/11/2000	Lake Trout
Higgins Lake	Roscommon County	2002037	Oct/02/2002	Lake Trout
Hopkins Lake	Shiawassee County	91033	Sep/04/1991	Largemouth Bass
Houghton Lake	Roscommon County	87063	Aug/05/1987	Carp, Northern Pike, Walleye
Houghton Lake	Roscommon County	92037	Jun/13/1992	Largemouth Bass
Houghton Lake	Roscommon County	93050	Jun/01/1993	Walleye
Houghton Lake	Roscommon County	94006	Jun/07/1994	Largemouth Bass
Houghton Lake	Roscommon County	1998126	Jun/16/1998	Largemouth Bass
Houghton Lake	Roscommon County	1998127	Jun/16/1998	Carp
Houghton Lake	Roscommon County	2001026	Oct/11/2001	Largemouth Bass
Houghton Lake	Roscommon County	2004037	May/27/2004	Largemouth Bass
Hubbard Lake	Alcona County	89076	Oct/16/1989	Northern Pike, Walleye
Huron River	Barton Pond	92021	May/07/1992	Carp, Smallmouth Bass
Huron River	Belleville Lake	88003	May/10/1988	Carp, Walleye
Huron River	Belleville Lake	1999014	May/19/1999	Carp, Gizzard Shad, Walleye, White Sucker
Huron River	Downstream Belleville Lake	2002041	Aug/20/2002	Channel Catfish
Huron River	Downstream Ford Lake	2002040	Aug/20/2002	Channel Catfish
Huron River	Ford Lake	83002	Sep/12/1983	Black Crappie, Brown Bullhead, Carp, Largemouth Bass, Walleye, White Sucker
Huron River	Ford Lake	89026	May/02/1989	Black Crappie, Walleye
Huron River	Ford Lake	92020	May/05/1992	Carp, Walleye
Huron River	Ford Lake	1999015	May/19/1999	Black Crappie, Carp, Channel Catfish, Walleye
Huron River	Rockwood, river mouth	91012	Sep/06/1991	Channel Catfish
Huron River	Rockwood, river mouth	96015	Aug/20/1996	Channel Catfish
Huron River	Rockwood, river mouth	2002042	Aug/20/2002	Channel Catfish
Huron River	Upstream Dexter	2002039	Aug/20/2002	Channel Catfish
Huron River	Wayne County, Flat Rock	83043	Apr/21/1983	Carp
Intermediate Lake	Antrim County	90044	Sep/19/1990	Rock Bass, Smallmouth Bass, Walleye
Iron River	Above Wild River Road	1998045	Jun/04/1998	Brown Trout
Jordan Lake	Ionia/Barry County	89047	Jun/21/1989	Largemouth Bass
Kalamazoo River	Above Otsego City Dam	93073.3	Oct/11/1993	Walleye
Kalamazoo River	Above Otsego City Dam	1999085	Oct/13/1999	Carp, Smallmouth Bass
Kalamazoo River	Above Otsego City Dam	1999096	Sep/08/1999	Channel Catfish
Kalamazoo River	Above Otsego City Dam	2001049	Sep/20/2001	Carp, Smallmouth Bass
Kalamazoo River	Below Lake Allegan Dam	1999020	Sep/08/1999	Channel Catfish
Kalamazoo River	Below Otsego Dam	1999023	Sep/08/1999	Channel Catfish
Kalamazoo River	Below Trowbridge Dam, 26th St. Bridge	1999022	Sep/08/1999	Channel Catfish
Kalamazoo River	Ceresco (12 Mile Road)	1999099	Sep/08/1999	Channel Catfish
Kalamazoo River	Ceresco (12 Mile Road)	2000114	Oct/04/2000	Channel Catfish
Kalamazoo River	Ceresco Impoundment, 12 Mile Road	1999082	Oct/07/1999	Carp, Smallmouth Bass
Kalamazoo River	Ceresco Impoundment, 12 Mile Road	2000120	Sep/21/2000	Carp, Smallmouth Bass
Kalamazoo River	Ceresco Impoundment, 12 Mile Road	2001042	Oct/11/2001	Carp, Smallmouth Bass

Waterbody	Location	Visit ID#	Date	Species
Kalamazoo River	Ceresco Impoundment, 15 Mile Road	87048	Jul/22/1987	Carp, Largemouth Bass, Smallmouth Bass
Kalamazoo River	City of Allegan Dam	1999092	Nov/09/1999	Carp, Smallmouth Bass
Kalamazoo River	City of Allegan Dam	2001052	Sep/17/2001	Carp, Smallmouth Bass
Kalamazoo River	City of Allegan, M-89	1999021	Sep/08/1999	Channel Catfish
Kalamazoo River	D-Avenue	2000112	Oct/04/2000	Channel Catfish
Kalamazoo River	D-Avenue	2000123	Aug/31/2000	Carp, Smallmouth Bass
Kalamazoo River	Galesburg, 35th St. Bridge	1999098	Sep/08/1999	Channel Catfish
Kalamazoo River	Kalamazoo Avenue	2000113	Oct/04/2000	Channel Catfish
Kalamazoo River	Kalamazoo Avenue	2000122	Aug/29/2000	Carp, Northern Pike, Rock Bass, Smallmouth Bass
Kalamazoo River	Kalamazoo Lake	83008	Jul/01/1984	Carp
Kalamazoo River	Kalamazoo Lake	85054	Jul/01/1985	Carp, Largemouth Bass, Smallmouth Bass
Kalamazoo River	Kalamazoo Lake	86027	Jul/09/1986	Carp, Largemouth Bass
Kalamazoo River	Kalamazoo Lake	87010	Mar/31/1987	Black Crappie, Bluegill, Brown Trout, Channel Catfish, Flathead Catfish, Freshwater Drum, Largemouth Bass, N. Pike Eggs, Northern Pike, Rainbow Trout, Rock Bass, Walleye, White Sucker, Yellow Perch
Kalamazoo River	Kalamazoo Lake	87046	Jul/13/1987	Carp
Kalamazoo River	Kalamazoo Lake	93035	Jun/08/1993	Carp
Kalamazoo River	Kalamazoo Lake	93073.6	Oct/09/1993	Walleye
Kalamazoo River	Kalamazoo Lake	1999095	Oct/19/1999	Brown Trout, Carp, Smallmouth Bass
Kalamazoo River	Kalamazoo Lake	2001055	Oct/03/2001	Carp, Channel Catfish, Smallmouth Bass
Kalamazoo River	Lake Allegan	83007	Jul/01/1983	Carp
Kalamazoo River	Lake Allegan	83034	May/01/1983	Largemouth Bass, Sunfish
Kalamazoo River	Lake Allegan	83046	May/12/1983	Carp
Kalamazoo River	Lake Allegan	85053	Jul/01/1985	Carp, Largemouth Bass, Smallmouth Bass
Kalamazoo River	Lake Allegan	86026	Jul/07/1986	Carp
Kalamazoo River	Lake Allegan	87045	Jul/14/1987	Carp, Northern Pike, Smallmouth Bass
Kalamazoo River	Lake Allegan	90050	Oct/11/1990	Carp
Kalamazoo River	Lake Allegan	90073	Oct/11/1990	Carp
Kalamazoo River	Lake Allegan	92018	Oct/27/1992	Carp
Kalamazoo River	Lake Allegan	92019	Oct/27/1992	Carp
Kalamazoo River	Lake Allegan	93073.1	Sep/16/1993	Walleye
Kalamazoo River	Lake Allegan	94012	Jun/22/1994	Carp
Kalamazoo River	Lake Allegan	94025	Jun/22/1994	Carp
Kalamazoo River	Lake Allegan	97016	Aug/28/1997	Carp
Kalamazoo River	Lake Allegan	1999016	Aug/05/1999	Carp
Kalamazoo River	Lake Allegan	1999087	Oct/05/1999	Carp, Channel Catfish, Smallmouth Bass
Kalamazoo River	Lake Allegan	2000110	Jan/04/2000	Channel Catfish
Kalamazoo River	Lake Allegan	2000124	Sep/18/2000	Black Crappie, Carp, Largemouth Bass, Smallmouth Bass, Walleye
Kalamazoo River	Lake Allegan	2001053	Aug/23/2001	Carp, Channel Catfish, Smallmouth Bass
Kalamazoo River	Lake Allegan	2001056	Aug/23/2001	Carp
Kalamazoo River	Lake Allegan	2003147	Jun/07/2003	Carp

Waterbody	Location	Visit ID#	Date	Species
Kalamazoo River	Lake Allegan	2005036	Jun/16/2005	Carp
Kalamazoo River	Morrow Pond	85049	Jul/01/1985	Carp, Largemouth Bass, Smallmouth Bass
Kalamazoo River	Morrow Pond	86022	Jul/07/1986	Carp
Kalamazoo River	Morrow Pond	87043	Jul/14/1987	Carp, Smallmouth Bass
Kalamazoo River	Morrow Pond	93073.2	Oct/15/1993	Walleye
Kalamazoo River	Morrow Pond	1999083	Jul/28/1999	Carp, Smallmouth Bass
Kalamazoo River	Morrow Pond	2001043	Aug/17/2001	Carp, Channel Catfish, Smallmouth Bass
Kalamazoo River	Mosel Avenue	83006	Jul/01/1983	Carp
Kalamazoo River	Mosel Avenue	85051	Jul/01/1985	Carp, Smallmouth Bass
Kalamazoo River	Mosel Avenue	86024	Jul/07/1986	Carp
Kalamazoo River	Mosel Avenue	93073.5	Oct/15/1993	Walleye
Kalamazoo River	Mosel Avenue	2001046	Sep/25/2001	Smallmouth Bass
Kalamazoo River	New Richmond	93073.4	Sep/21/1993	Walleye
Kalamazoo River	New Richmond	1999094	Nov/18/1999	Carp, Channel Catfish, Largemouth Bass, Smallmouth Bass
Kalamazoo River	New Richmond	2001054	Oct/16/2001	Carp, Flathead Catfish, Smallmouth Bass
Kalamazoo River	Otsego Dam Impoundment	1999086	Oct/29/1999	Carp, Smallmouth Bass
Kalamazoo River	Otsego Dam Impoundment	2001050	Sep/18/2001	Carp, Smallmouth Bass
Kalamazoo River	Plainwell Dam Reservoir	83005	Jul/01/1983	Carp
Kalamazoo River	Plainwell Dam Reservoir	85052	Jul/01/1985	Carp, Smallmouth Bass
Kalamazoo River	Plainwell Dam Reservoir	86025	Jul/08/1986	Carp
Kalamazoo River	Plainwell Dam Reservoir	87044	Jul/14/1987	Carp
Kalamazoo River	Plainwell Dam Reservoir	1999084	Oct/12/1999	Carp, Smallmouth Bass
Kalamazoo River	Plainwell Dam Reservoir	2001048	Sep/05/2001	Carp, Smallmouth Bass
Kalamazoo River	Plainwell, M-89	2000111	Oct/04/2000	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	90019	Aug/07/1990	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	93044	Jul/01/1993	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	96016	Aug/21/1996	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	1999019	Sep/08/1999	Channel Catfish
Kalamazoo River	Trowbridge Dam Impoundment	1999093	Nov/03/1999	Carp, Channel Catfish, Smallmouth Bass
Kalamazoo River	Trowbridge Dam Impoundment	2001051	Oct/09/2001	Carp, Smallmouth Bass
Kalamazoo River	Trowbridge Dam Impoundment	2003142	Aug/18/2003	Carp, Smallmouth Bass
Kalamazoo River, South Branch	Hillsdale County	1998103	Apr/22/1998	White Sucker
Kawkawlin River	Bay County, M-247	88027	Aug/04/1988	Carp, Northern Pike
Kawkawlin River	Bay County, M-247	2004039	Aug/10/2004	Carp, Northern Pike
Kawkawlin River	Route 13 (S. Huron Road)	2001127	Jul/23/2001	Channel Catfish
Kawkawlin River	Wheeler Road	2001128	Jul/23/2001	Channel Catfish
Kearsley Creek	Kearsley Reservoir	2000029	Jul/07/2000	Carp, Largemouth Bass
Kent Lake	Oakland County	90017	Jul/18/1990	Black Crappie, Largemouth Bass, Smallmouth Bass, Walleye
Kent Lake	Oakland County	1998050	Jul/27/1998	Carp, Largemouth Bass, Smallmouth Bass
Kent Lake	Oakland County	2004040	May/11/2004	Black Crappie, Walleye
King Lake	Baraga County	2005037	Apr/30/2005	Largemouth Bass

Waterbody	Location	Visit ID#	Date	Species
Kingston Lake	Alger County	2003047	May/29/2003	Largemouth Bass, Muskellunge, Smallmouth Bass, Walleye
Klinger Lake	St. Joseph County	90034	Oct/02/1990	Largemouth Bass
Klinger Lake	St. Joseph County	2001145	Aug/22/2001	Largemouth Bass
Lake 27	Otsego County	95033	Jun/10/1995	Northern Pike
Lake Ann	Benzie County	89013	May/31/1989	Northern Pike, Smallmouth Bass
Lake Cadillac	Wexford County	2004041	Sep/28/2004	Northern Pike, Smallmouth Bass
Lake Charlevoix	Charlevoix County	90051	Nov/01/1990	Brown Trout, Lake Trout
Lake Emma	Presque Isle County	2003050	May/22/2003	Northern Pike
Lake Erie	Brest Bay	90003	Apr/09/1990	Carp, Walleye
Lake Erie	Brest Bay	92026	Apr/10/1992	Carp, Walleye
Lake Erie	Brest Bay	92062	Oct/15/1992	Walleye
Lake Erie	Brest Bay	94026	Apr/19/1994	Carp, Walleye
Lake Erie	Brest Bay	97017	Apr/21/1997	Carp
Lake Erie	Brest Bay	1998051	Apr/15/1998	Carp, Walleye
Lake Erie	Brest Bay	2002044	Apr/26/2002	Carp
Lake Erie	Brest Bay	2003051	Oct/24/2003	Walleye
Lake Erie	Brest Bay	2004042	Oct/08/2004	Walleye
Lake Erie	Huron River, Flat Rock	84050	Jan/01/1984	Coho
Lake Erie	Huron River, Flat Rock	97018	Oct/17/1997	Chinook, Rainbow Trout
Lake Erie	N. Maumee Bay	95008	Apr/26/1995	Carp
Lake Erie	Off Monroe	86002	Apr/22/1986	Carp, Channel Catfish, Walleye
Lake Erie	Off Monroe	87093	Oct/20/1987	Walleye
Lake Erie	Off Monroe	94027	Apr/19/1994	Walleye
Lake Erie	Off Monroe	95040	Apr/26/1995	Freshwater Drum, White Bass, White Perch
Lake Erie	Off Monroe	2000030	Apr/04/2000	Carp
Lake Erie	Western Basin	93082	Apr/01/1993	Carp, Channel Catfish, Gizzard Shad, White Bass, Yellow Perch
Lake Erie	Western Basin	95058	Oct/11/1995	Walleye
Lake Erie	Western Basin	97019	Apr/15/1997	Lake Whitefish, Smallmouth Bass, Yellow Perch
Lake Erie	Western Basin	2002045	Apr/05/2002	Channel Catfish
Lake Erie	Western Basin	2004043	Apr/20/2004	Walleye, White Bass, White Perch
Lake Esau	Presque Isle County	2003052	Jun/18/2003	Smallmouth Bass
Lake Fenton	Genesee County	87059	Jul/22/1987	Largemouth Bass
Lake Fenton	Genesee County	89037	May/09/1989	Largemouth Bass
Lake Fenton	Genesee County	90005	May/23/1990	Largemouth Bass, Northern Pike, Walleye
Lake Geneserath	Charlevoix County, Beaver Island	90072	Jun/01/1990	Largemouth Bass, Northern Pike
Lake Gogebic	Gogebic/Ontonagon County	85062	Jul/30/1985	Walleye, White Sucker
Lake Gogebic	Gogebic/Ontonagon County	92043	May/05/1992	Walleye
Lake Gogebic	Gogebic/Ontonagon County	94028	Apr/29/1994	Walleye
Lake Gogebic	Gogebic/Ontonagon County	97020	May/04/1997	Walleye, Yellow Perch
Lake Gogebic	Gogebic/Ontonagon County	2000031	Apr/18/2000	Walleye
Lake Gogebic	Gogebic/Ontonagon County	2002046	Apr/28/2002	Walleye
Lake Gogebic	Gogebic/Ontonagon County	2002047	Apr/28/2002	Walleye
Lake Gogebic	Gogebic/Ontonagon County	2003156	Oct/14/2003	Rock Bass
Lake Gogebic	Gogebic/Ontonagon County	2005040	Jun/10/2005	Walleye
Lake Hudson	Lenawee County	89003	Apr/03/1989	Carp, Muskellunge, Northern Pike
Lake Hudson	Lenawee County	2000032	Jul/21/2000	Carp, Largemouth Bass

Waterbody	Location	Visit ID#	Date	Species
Lake Huron	Alpena	85024	Oct/10/1985	Brown Trout
Lake Huron	Au Sable River	83014	Oct/11/1983	Chinook
Lake Huron	Au Sable River	83041	Oct/08/1983	Chinook
Lake Huron	Au Sable River	84046	Sep/19/1984	Chinook
Lake Huron	Au Sable River	86052	Sep/26/1986	Chinook
Lake Huron	Au Sable River	87079	Sep/17/1987	Chinook
Lake Huron	Au Sable River	89062	Oct/11/1989	Chinook
Lake Huron	Au Sable River	91048	Sep/30/1991	Chinook
Lake Huron	Au Sable River	93060	Oct/12/1993	Chinook
Lake Huron	Au Sable River	97022	Oct/06/1997	Chinook
Lake Huron	Black River	95053	Oct/18/1995	Chinook
Lake Huron	Black River	96018	Oct/15/1996	Coho
Lake Huron	Black River	1998052	Oct/14/1998	Coho
Lake Huron	East of Bois Blanc Island	83025	Nov/08/1983	Lake Trout
Lake Huron	Grindstone City	89050	May/30/1989	Lake Trout
Lake Huron	Grindstone City	2004130	May/10/2004	Lake Trout
Lake Huron	Hammond Bay	83018	Oct/25/1983	Lake Trout, Lake Whitefish
Lake Huron	Harbor Beach	89068	Nov/01/1989	Brown Trout
Lake Huron	Les Cheneaux Islands	95003	Apr/17/1995	Yellow perch
Lake Huron	Lexington	85027	Oct/22/1985	Brown Trout
Lake Huron	Marquette Island	83024	Nov/08/1983	Lake Trout
Lake Huron	Nunns Creek	93051	Apr/25/1993	Rainbow Smelt
Lake Huron	Oscoda	85025	Oct/10/1985	Brown Trout
Lake Huron	Port Austin	86007	May/27/1986	Lake Trout
Lake Huron	Port Austin	91052	May/20/1991	Lake Trout
Lake Huron	Port Austin	96019	May/16/1996	Lake Trout, Lake Whitefish
Lake Huron	Port Sanilac	85026	Oct/23/1985	Brown Trout
Lake Huron	Rock Falls Creek	91023	Apr/26/1991	Rainbow Trout
Lake Huron	Rock Falls Creek	92006	Apr/09/1992	Rainbow Trout
Lake Huron	Rockport	86021	Jun/19/1986	Lake Trout
Lake Huron	Rockport	89049	May/15/1989	Lake Trout
Lake Huron	Saginaw Bay	85031	May/23/1985	Channel Catfish
Lake Huron	Saginaw Bay	90063	Apr/24/1990	Carp, Walleye
Lake Huron	Saginaw Bay	91041	Oct/02/1991	Walleye
Lake Huron	Saginaw Bay	92028	May/19/1992	Carp, Walleye
Lake Huron	Saginaw Bay	94037	Sep/26/1994	Carp, Walleye
Lake Huron	Saginaw Bay	1998139	Sep/21/1998	Carp, Walleye
Lake Huron	Saginaw Bay	2001059	Aug/22/2001	Carp
Lake Huron	Saginaw Bay	2003055	Sep/17/2003	Alewife, Spottail Shiner
Lake Huron	Saginaw Bay	2003056	Aug/26/2003	Carp, Walleye
Lake Huron	Saginaw Bay	2005042	Oct/14/2005	Carp, Walleye
Lake Huron	Saginaw Bay, Au Gres	87017	Jun/22/1987	Carp, Channel Catfish, Walleye, Yellow Perch
Lake Huron	Saginaw Bay, Au Gres	91037	Sep/25/1991	Carp, Channel Catfish, Walleye, White Sucker, Yellow Perch
Lake Huron	Saginaw Bay, Bay Port	84043	Jul/31/1984	Carp
Lake Huron	Saginaw Bay, Bay Port	87015	May/12/1987	Carp, Channel Catfish, Walleye, Yellow Perch
Lake Huron	Saginaw Bay, Bay Port	2004046	Sep/10/2004	Carp, Channel Catfish, Walleye, White Bass, White Sucker, Yellow Perch

Waterbody	Location	Visit ID#	Date	Species
Lake Huron	Saginaw Bay, Caseville	86028	Jun/25/1986	Channel Catfish, Walleye
Lake Huron	Saginaw Bay, Charity Island	84044	Sep/27/1984	Walleye
Lake Huron	Saginaw Bay, Fish Point	91038	Oct/01/1991	Carp, Channel Catfish, Walleye, White Sucker, Yellow Perch
Lake Huron	Saginaw Bay, near Saginaw River mouth	84042	Jun/04/1984	Carp, Channel Catfish
Lake Huron	Saginaw Bay, near Saginaw River mouth	85034	May/28/1985	Carp, Channel Catfish
Lake Huron	Saginaw Bay, near Saginaw River mouth	92054	Sep/23/1992	Lake Whitefish, Walleye
Lake Huron	Saginaw Bay, near Saginaw River mouth	93069	Jun/04/1993	Alewife, Brown Trout, Carp, Lake Trout, Northern Pike, White Bass, Yellow Perch
Lake Huron	Saginaw Bay, near Saginaw River mouth	94038	Sep/27/1994	Walleye, White Perch
Lake Huron	Saginaw Bay, near Saginaw River mouth	1998140	Sep/21/1998	Carp, Channel Catfish, Walleye
Lake Huron	Saginaw Bay, near Saginaw River mouth	1999089	Oct/21/1999	Channel Catfish
Lake Huron	Saginaw Bay, off Saginaw River	87016	May/17/1987	Carp, Channel Catfish, Walleye, Yellow Perch
Lake Huron	Saginaw Bay, Pinconning	86068	Jun/23/1986	Carp, Channel Catfish
Lake Huron	Saginaw Bay, Rifle River	93009	Apr/19/1993	Rainbow Trout, White Sucker
Lake Huron	Saginaw Bay, Sand Point	83032	May/01/1983	Walleye
Lake Huron	Saginaw Bay, Sebewaing	86069	Apr/22/1986	Channel Catfish
Lake Huron	Saginaw Bay, Wildfowl Bay	85033	May/23/1985	Carp
Lake Huron	Saginaw Bay, Wildfowl Bay	85063	Sep/25/1985	Carp
Lake Huron	Saginaw Bay, Wildfowl Bay	85064	Apr/26/1985	Carp, Channel Catfish
Lake Huron	Saginaw Bay, Wildfowl Bay	86070	Apr/21/1986	Carp
Lake Huron	Saginaw Bay, Wildfowl Bay	86071	May/12/1986	Channel Catfish
Lake Huron	Saginaw Bay, Wildfowl Bay	86072	Jul/21/1986	Carp
Lake Huron	Saginaw Bay, Wildfowl Bay	88010	Jun/14/1988	Carp, Channel Catfish, Walleye, Yellow Perch
Lake Huron	South Point	92055	Jun/02/1992	Lake Trout, Lake Whitefish
Lake Huron	Swan River	84054	Sep/30/1984	Coho
Lake Huron	Swan River	86055	Oct/07/1986	Chinook
Lake Huron	Swan River	86067	Oct/10/1986	Coho
Lake Huron	Swan River	87080	Sep/18/1987	Chinook
Lake Huron	Swan River	88090	Sep/01/1988	Chinook
Lake Huron	Swan River	89064	Oct/20/1989	Chinook
Lake Huron	Swan River	91047	Sep/30/1991	Chinook
Lake Huron	Swan River	93052	Oct/13/1993	Chinook
Lake Huron	Swan River	95048	Oct/10/1995	Chinook
Lake Huron	Swan River	96021	Oct/18/1996	Chinook
Lake Huron	Swan River	97021	Oct/13/1997	Chinook
Lake Huron	Swan River	1998053	Oct/01/1998	Chinook
Lake Huron	Tawas Bay	90068	Oct/10/1990	Burbot
Lake Huron	Tawas River	83009	Oct/11/1983	Chinook, Coho
Lake Huron	Tawas River	84056	Oct/01/1984	Coho
Lake Huron	Tawas River	85056	Oct/08/1985	Coho
Lake Huron	Tawas River	86051	Sep/26/1986	Chinook, Coho
Lake Huron	Thunder Bay	86046	Jul/23/1986	Brown Trout
Lake Huron	Thunder Bay	90069	Oct/15/1990	Brown Trout
Lake Huron	Thunder Bay	91053	Jun/19/1991	Brown Trout

Waterbody	Location	Visit ID#	Date	Species
Lake Huron	Thunder Bay	91054	Jun/25/1991	Walleye
Lake Huron	Thunder Bay	92056	Jun/04/1992	Carp, Lake Trout
Lake Huron	Thunder Bay	92057	Jun/01/1992	Brown Trout, Lake Whitefish
Lake Huron	Thunder Bay	93070	Jun/14/1993	Alewife, Brown Trout, Carp, Channel Catfish, Chub, Lake Trout, Walleye
Lake Huron	Thunder Bay	94029	Jun/27/1994	Carp, Lake Trout
Lake Huron	Thunder Bay	95036	Jun/16/1995	Carp, Lake Trout, Spottail Shiner, Walleye
Lake Huron	Thunder Bay	96022	Jun/26/1996	Lake Trout, Lake Whitefish
Lake Huron	Thunder Bay	1998054	Aug/22/1998	Lake Trout, Walleye
Lake Huron	Thunder Bay	1998055	Aug/20/1998	Lake Whitefish
Lake Huron	Thunder Bay	1999028	Sep/28/1999	Carp, Yellow Perch
Lake Huron	Thunder Bay	1999029	Aug/03/1999	Carp, Lake Whitefish, Walleye
Lake Huron	Thunder Bay	2001061	Jul/02/2001	Carp
Lake Huron	Thunder Bay	2001062	Jun/13/2001	Carp, Lake Trout, Walleye
Lake Huron	Thunder Bay	2004048	May/20/2004	Carp, Lake Trout
Lake Huron	Thunder Bay	2004145	May/24/2004	Lake Trout
Lake Huron	Thunder Bay	2005044	Jun/08/2005	Lake Trout, Walleye
Lake Huron	Thunder Bay	2005161	May/03/2005	9-spine stickleback, Smelt
Lake Huron	Thunder Bay River	89051	Jun/29/1989	Carp, Channel Catfish, Walleye
Lake Independence	Marquette County	89034	May/08/1989	Northern Pike, Walleye
Lake Independence	Marquette County	95009	May/09/1995	Lake Herring, Northern Pike, Walleye
Lake Independence	Marquette County	2005045	Apr/29/2005	Walleye
Lake Lansing	Ingham County	89036	Jun/07/1989	Black Crappie, Largemouth Bass
Lake Le Vasseur	Marquette County	2002104	Jun/19/2002	Northern Pike
Lake Macatawa	Ottawa County	80002	Jan/01/1980	Black Crappie, Bluegill, Carp, Channel Catfish, Northern Pike, Smallmouth Bass, Walleye, White Sucker, Yellow Perch
Lake Macatawa	Ottawa County	84002	Apr/10/1984	Carp, Walleye
Lake Macatawa	Ottawa County	87061	Jul/16/1987	Carp, Walleye
Lake Macatawa	Ottawa County	95006	May/05/1995	Carp, Walleye
Lake Macatawa	Ottawa County	2005047	May/16/2005	Carp, Walleye
Lake Margrethe	Crawford County	95002	Mar/31/1995	Walleye
Lake Medora	Keweenaw County	2004050	Jun/15/2004	Smallmouth Bass, Walleye
Lake Michigamme	Marquette County	84019	Aug/22/1984	Northern Pike, Rock Bass, Walleye, White Sucker, Yellow Perch
Lake Michigamme	Marquette County	97023	Jun/07/1997	Lake Herring, Northern Pike, White Sucker
Lake Michigan	Big Bay De Noc	90059	May/30/1990	Lake Whitefish
Lake Michigan	Bridgeman	2002112	Oct/03/2001	Lake Sturgeon
Lake Michigan	Bridgeman	2003159	Sep/05/2003	Lake Sturgeon
Lake Michigan	Charlevoix	86012	Jun/06/1986	Brown Trout, Chinook, Lake Trout
Lake Michigan	Charlevoix	96027	Aug/27/1996	Lake Trout
Lake Michigan	Charlevoix/Little Traverse Bay	89043	May/17/1989	Lake Trout
Lake Michigan	Epoufette	83019	Nov/08/1983	Lake Whitefish
Lake Michigan	Glen Haven	83022	Oct/20/1983	Lake Trout
Lake Michigan	Glen Haven	84040	Jun/04/1984	Chub
Lake Michigan	Grand Haven	86001	Apr/04/1986	Lake Trout, Yellow Perch

Waterbody	Location	Visit ID#	Date	Species
Lake Michigan	Grand Haven	87011	Apr/07/1987	Lake Trout
Lake Michigan	Grand Haven	96025	May/29/1996	Lake Trout
Lake Michigan	Grand Haven	97030	Apr/11/1997	Yellow Perch
Lake Michigan	Grand River, Grand Rapids	84055	Sep/28/1984	Coho
Lake Michigan	Grand River, Grand Rapids	94059	Oct/01/1994	Rainbow Trout
Lake Michigan	Grand River, Webber Dam	83015	Oct/06/1983	Chinook, Coho
Lake Michigan	Grand River, Webber Dam	85057	Sep/27/1985	Coho
Lake Michigan	Grand River, Webber Dam	86050	Oct/03/1986	Coho
Lake Michigan	Grand River, Webber Dam	87086	Sep/23/1987	Chinook
Lake Michigan	Grand River, Webber Dam	88041	Sep/19/1988	Coho
Lake Michigan	Grand River, Webber Dam	90046	Sep/25/1990	Coho
Lake Michigan	Grand River, Webber Dam	91045	Oct/10/1991	Chinook
Lake Michigan	Grand River, Webber Dam	92052	Sep/22/1992	Coho
Lake Michigan	Grand River, Webber Dam	93077	Sep/21/1993	Chinook
Lake Michigan	Grand River, Webber Dam	94043	Sep/15/1994	Coho
Lake Michigan	Grand River, Webber Dam	95054	Oct/12/1995	Chinook
Lake Michigan	Grand River, Webber Dam	97024	Sep/29/1997	Chinook
Lake Michigan	Grand River, Webber Dam	1998056	Oct/28/1998	Coho
Lake Michigan	Grand Traverse Bay	83016	Aug/16/1983	Lake Whitefish
Lake Michigan	Grand Traverse Bay	83026	Nov/29/1983	Lake Trout
Lake Michigan	Grand Traverse Bay	90074	Jun/20/1990	Lake Trout
Lake Michigan	Grand Traverse Bay	91061	Oct/29/1991	Lake Whitefish
Lake Michigan	Grand Traverse Bay	92059	Jul/15/1992	Lake Trout
Lake Michigan	Grand Traverse Bay	92060	Aug/05/1992	Brown Trout, Lake Whitefish
Lake Michigan	Grand Traverse Bay	93010	Aug/12/1993	Carp
Lake Michigan	Grand Traverse Bay	95050	Jul/19/1995	Carp, Lake Trout
Lake Michigan	Grand Traverse Bay	97025	Oct/02/1997	Lake Trout
Lake Michigan	Grand Traverse Bay	97077	Dec/30/1997	Lake Whitefish
Lake Michigan	Grand Traverse Bay	1998057	Oct/07/1998	Lake Trout
Lake Michigan	Grand Traverse Bay	1998141	Sep/09/1998	Lake Trout
Lake Michigan	Grand Traverse Bay	2000036	Sep/13/2000	Carp
Lake Michigan	Grand Traverse Bay	2001065	Aug/15/2001	Lake Trout
Lake Michigan	Grand Traverse Bay	2003060	Oct/31/2003	Carp
Lake Michigan	Grand Traverse Bay	2004053	May/18/2004	Lake Trout
Lake Michigan	Grand Traverse Bay, East Arm	84031	Mar/01/1984	Lake Trout
Lake Michigan	Grand Traverse Bay, East Arm	90065	Nov/11/1990	Lake Whitefish, Yellow Perch
Lake Michigan	Grand Traverse Bay, East Arm	96024	Dec/05/1996	Lake Whitefish
Lake Michigan	Grand Traverse Bay, East Arm	96060	Dec/05/1996	Lake Whitefish
Lake Michigan	Grand Traverse Bay, East Arm	96061	Mar/01/1996	Lake Whitefish
Lake Michigan	Grand Traverse Bay, West Arm	84032	Mar/20/1984	Lake Trout
Lake Michigan	Grand Traverse Bay, West Arm	84037	May/29/1984	Lake Trout
Lake Michigan	Grand Traverse Bay, West Arm	90066	Jun/20/1990	Lake Whitefish
Lake Michigan	Grand Traverse Bay, West Arm	93088	Jun/07/1993	Brown Trout, Lake Whitefish
Lake Michigan	Green Bay	93078	Apr/18/1993	Brown Trout, Splake

Waterbody	Location	Visit ID#	Date	Species
Lake Michigan	Green Bay	1999032	Aug/02/1999	Lake Whitefish
Lake Michigan	Green Bay	2001066	Apr/13/2001	Brown Trout
Lake Michigan	Green Bay	2002054	Apr/11/2002	Brown Trout
Lake Michigan	Green Bay	2003148	Apr/10/2003	Brown Trout
Lake Michigan	Green Bay	2004054	Apr/08/2004	Smallmouth Bass, White Sucker
Lake Michigan	Green Bay, Cedar River	88057	Jul/19/1988	Longnose Sucker, White Sucker
Lake Michigan	Green Bay, Cedar River	92022	Apr/29/1992	Brown Trout, Chinook, Rainbow Trout, Smallmouth Bass, Splake, Walleye
Lake Michigan	Green Bay, Cedar River	2000037	Apr/10/2000	Carp
Lake Michigan	Green Bay, Cedar River	2005050	Apr/15/2005	Longnose Sucker, Smallmouth Bass, Walleye, White Sucker
Lake Michigan	Kalamazoo River mouth	2003155	May/17/2002	Lake Sturgeon
Lake Michigan	Leland	84049	Aug/06/1984	Chub
Lake Michigan	Little Bay De Noc	83017	Oct/20/1983	Lake Trout, Lake Whitefish
Lake Michigan	Little Bay De Noc	87004	Apr/14/1987	Northern Pike, Walleye
Lake Michigan	Little Bay De Noc	89032	Apr/10/1989	Carp
Lake Michigan	Little Bay De Noc	90001	Feb/28/1990	Burbot
Lake Michigan	Little Bay De Noc	91022	Apr/16/1991	Longnose Sucker, Walleye
Lake Michigan	Little Bay De Noc	92046	Jun/04/1992	Carp, Walleye
Lake Michigan	Little Bay De Noc	92049	Jun/04/1992	Walleye
Lake Michigan	Little Bay De Noc	93079	Apr/27/1993	Carp, Yellow Perch
Lake Michigan	Little Bay De Noc	94041	Apr/20/1994	Carp, Walleye
Lake Michigan	Little Bay De Noc	94042	Apr/20/1994	White Sucker
Lake Michigan	Little Bay De Noc	95016	Feb/12/1995	Lake Sturgeon
Lake Michigan	Little Bay De Noc	97026	Apr/28/1997	Walleye, Yellow Perch
Lake Michigan	Little Bay De Noc	2000039	Oct/05/2000	Carp, Walleye
Lake Michigan	Little Bay De Noc	2002055	Apr/19/2002	Walleye
Lake Michigan	Little Bay De Noc	2003061	Apr/15/2003	Carp
Lake Michigan	Little Bay De Noc	2004150	Sep/10/2004	Carp, Redhorse Sucker, Rock Bass, Smallmouth Bass, Walleye
Lake Michigan	Little Bay De Noc	2005051	Apr/14/2005	Carp, Walleye
Lake Michigan	Little Manistee River Weir	85021	Sep/09/1985	Brown Trout
Lake Michigan	Little Manistee River Weir	86053	Oct/06/1986	Brown Trout, Chinook, Rainbow Trout
Lake Michigan	Little Manistee River Weir	94044	Nov/07/1994	Rainbow Trout
Lake Michigan	Little Traverse Bay	83021	Sep/27/1983	Lake Trout
Lake Michigan	Little Traverse Bay	84036	May/02/1984	Lake Trout
Lake Michigan	Ludington	90058	Oct/21/1990	Yellow Perch
Lake Michigan	Ludington	2000118	Jul/19/1999	Lake Sturgeon
Lake Michigan	Manistee	83029	May/12/1983	Chub
Lake Michigan	Manistee Lake	2003158	Jul/10/2003	Lake Sturgeon
Lake Michigan	Manistee River	83020	Sep/20/1983	Chinook
Lake Michigan	Manistee River	84045	Sep/06/1984	Chinook, Coho
Lake Michigan	Manistee River	84047	Sep/19/1984	Chinook
Lake Michigan	Manistee River	85066	Sep/25/1985	Chinook
Lake Michigan	Manistee River	86066	Oct/10/1986	Chinook, Coho
Lake Michigan	Manistee River	88092	Sep/10/1988	Chinook, Chinook Eggs, Coho
Lake Michigan	Manistee River	97069	May/15/1997	Lake Sturgeon
Lake Michigan	Manistee River	2004055	Apr/01/2004	Rainbow Trout
Lake Michigan	Manistique River	85036	May/15/1985	Rainbow Trout

Waterbody	Location	Visit ID#	Date	Species
Lake Michigan	Manitou Islands	83031	Oct/20/1983	Chub
Lake Michigan	Menominee River	88052	Oct/12/1988	Brown Trout
Lake Michigan	Millecoquins River	2000115	Dec/14/2000	Lake Sturgeon
Lake Michigan	Muskegon	88060	Jun/01/1988	Carp, Walleye
Lake Michigan	Muskegon	90009	May/30/1990	Lake Whitefish
Lake Michigan	Muskegon	97027	Jul/01/1997	Lake Whitefish
Lake Michigan	New Buffalo	2003160	Aug/19/2003	Lake Sturgeon
Lake Michigan	Northern Lake Michigan	97028	Mar/26/1997	Lake Whitefish
Lake Michigan	Northern Lake Michigan	2001132	Oct/31/2001	Burbot
Lake Michigan	Norwood	84033	Mar/20/1984	Lake Trout
Lake Michigan	Pentwater	83028	May/06/1983	Chub
Lake Michigan	Pentwater	84034	Apr/09/1984	Lake Trout
Lake Michigan	Pentwater	84041	Aug/02/1984	Chub
Lake Michigan	Pentwater	89039	May/02/1989	Lake Trout
Lake Michigan	Pentwater	91025	Apr/12/1991	Brown Trout, Lake Trout
Lake Michigan	Platte River	83011	Oct/07/1983	Chinook, Coho
Lake Michigan	Platte River	83040	Sep/20/1983	Coho
Lake Michigan	Platte River	84048	Sep/30/1984	Coho
Lake Michigan	Platte River	84053	Oct/09/1984	Coho
Lake Michigan	Platte River	85022	Sep/25/1985	Brown Trout
Lake Michigan	Platte River	85055	Sep/25/1985	Coho
Lake Michigan	Platte River	85068	Sep/25/1985	Coho
Lake Michigan	Platte River	86054	Oct/06/1986	Coho
Lake Michigan	Platte River	87091	Oct/06/1987	Chinook
Lake Michigan	Platte River	88066	Sep/26/1988	Coho
Lake Michigan	Platte River	88091	Sep/10/1988	Coho, Coho Eggs
Lake Michigan	Platte River	89067	Oct/30/1989	Chinook
Lake Michigan	Platte River	90048	Oct/01/1990	Coho
Lake Michigan	Platte River	91055	Oct/09/1991	Chinook
Lake Michigan	Platte River	92068	Sep/23/1992	Coho
Lake Michigan	Platte River	92069	Oct/21/1992	Brown Trout
Lake Michigan	Platte River	93053	Sep/29/1993	Chinook
Lake Michigan	Platte River	94045	Oct/01/1994	Coho
Lake Michigan	Platte River	94046	Oct/15/1994	Rainbow Trout
Lake Michigan	Platte River	95049	Oct/09/1995	Chinook
Lake Michigan	Platte River	96028	Oct/01/1996	Coho
Lake Michigan	Platte River	97029	Oct/15/1997	Chinook
Lake Michigan	Platte River	1998059	Sep/24/1998	Coho
Lake Michigan	Platte River Hatchery	94060	Oct/19/1994	Coho
Lake Michigan	Point Betsie	84035	Apr/15/1984	Lake Trout
Lake Michigan	South Fox Island	83027	Nov/29/1983	Lake Trout
Lake Michigan	South Haven	83030	Aug/08/1983	Chub
Lake Michigan	South Haven	86008	Jun/07/1986	Brown Trout, Chinook, Rainbow Trout
Lake Michigan	South Haven	87034	Jun/13/1987	Lake Trout
Lake Michigan	South Haven	90041	Sep/11/1990	Yellow Perch
Lake Michigan	South Haven	1998060	Apr/23/1998	Rainbow Smelt
Lake Michigan	South Haven	2004051	Jun/15/2004	Round Goby
Lake Michigan	Southern	94057	Jul/01/1994	Lake Sturgeon
Lake Michigan	Southern	95064	Sep/24/1995	Lake Sturgeon

Waterbody	Location	Visit ID#	Date	Species
Lake Michigan	Southern	1998152	Sep/25/1998	Rainbow Smelt
Lake Michigan	St. Joseph River, Berrien Springs	83010	Oct/05/1983	Chinook, Coho
Lake Michigan	St. Joseph River, Berrien Springs	84051	Oct/03/1984	Coho
Lake Michigan	St. Joseph River, Berrien Springs	85023	Sep/20/1985	Brown Trout
Lake Michigan	St. Joseph River, Berrien Springs	85059	Sep/19/1985	Coho
Lake Michigan	St. Joseph River, Berrien Springs	86048	Sep/15/1986	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	86049	Sep/15/1986	Coho
Lake Michigan	St. Joseph River, Berrien Springs	87001	Apr/07/1987	Rainbow Trout
Lake Michigan	St. Joseph River, Berrien Springs	87084	Sep/30/1987	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	87085	Sep/30/1987	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	88032	Sep/15/1988	Coho
Lake Michigan	St. Joseph River, Berrien Springs	89065	Oct/27/1989	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	89066	Oct/27/1989	Brown Trout
Lake Michigan	St. Joseph River, Berrien Springs	90042	Sep/19/1990	Brown Trout
Lake Michigan	St. Joseph River, Berrien Springs	90043	Sep/20/1990	Coho
Lake Michigan	St. Joseph River, Berrien Springs	91043	Sep/30/1991	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	92067	Sep/22/1992	Coho
Lake Michigan	St. Joseph River, Berrien Springs	93061	Sep/09/1993	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	94047	Sep/29/1994	Coho
Lake Michigan	St. Joseph River, Berrien Springs	94048	Sep/12/1994	Rainbow Trout
Lake Michigan	St. Joseph River, Berrien Springs	95055	Oct/13/1995	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	96030	Oct/22/1996	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	97031	Oct/31/1997	Chinook
Lake Michigan	St. Joseph River, Berrien Springs	1998061	Sep/25/1998	Coho
Lake Michigan	St. Joseph River, Berrien Springs	2004060	Mar/26/2004	Rainbow Trout
Lake Michigan	Sturgeon Bay	83023	Oct/20/1983	Lake Trout
Lake Michigan	Thompson Creek	83012	Oct/31/1983	Chinook, Coho
Lake Michigan	Thompson Creek	84052	Oct/17/1984	Coho
Lake Michigan	Thompson Creek	85020	Oct/15/1985	Brown Trout
Lake Michigan	Thompson Creek	85058	Sep/19/1985	Coho
Lake Michigan	Thompson Creek	86060	Oct/17/1986	Coho
Lake Michigan	Thompson Creek	87094	Oct/01/1987	Chinook
Lake Michigan	Thompson Creek	88048	Sep/18/1988	Coho
Lake Michigan	Thompson Creek	89071	Oct/01/1989	Brown Trout

Waterbody	Location	Visit ID#	Date	Species
Lake Michigan	Thompson Creek	89072	Oct/01/1989	Chinook
Lake Michigan	Thompson Creek	96031	Oct/01/1996	Coho
Lake Michigan	Thompson Creek	97032	Oct/14/1997	Chinook
Lake Michigan	Thompson Creek	1998062	Oct/20/1998	Coho
Lake Mitchell	Wexford County	89012	Jun/14/1989	Largemouth Bass, Walleye
Lake Mitchell	Wexford County	2003141	May/01/2003	Largemouth Bass
Lake Nepessing	Lapeer County	97033	Sep/11/1997	Largemouth Bass
Lake Orion	Oakland County	87021	May/29/1987	Largemouth Bass
Lake Orion	Oakland County	89005	Jun/07/1989	Largemouth Bass, Northern Pike
Lake Orion	Oakland County	2001071	May/01/2001	Carp, Largemouth Bass
Lake Ovid	Clinton County	89011	Apr/28/1989	Black Bullhead, Black Crappie, Largemouth Bass, Northern Pike, Tiger Muskie, Yellow Bullhead
Lake Ovid	Clinton County	2003152	Jun/25/2003	Largemouth Bass
Lake Paradise	Emmet County	2001073	Oct/09/2001	Largemouth Bass, Smallmouth Bass, White Sucker
Lake Ponemah	Genesse County	2000044	Jul/07/2000	Carp, Largemouth Bass
Lake St. Clair	Bouvier Bay	86017	Jun/17/1986	Carp, Smallmouth Bass
Lake St. Clair	L'Anse Creuse Bay	90002	Apr/02/1990	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	92029	Jun/04/1992	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	94049	Aug/24/1994	Bluegill, Brown Bullhead, Channel Catfish, Freshwater Drum, Largemouth Bass, Northern Pike, Rock Bass, Smallmouth Bass, Yellow Perch
Lake St. Clair	L'Anse Creuse Bay	94058	Jul/13/1994	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	97034	Jun/01/1997	Black Crappie, Bluegill, Northern Pike, Pumpkinseed, Walleye, White Bass
Lake St. Clair	L'Anse Creuse Bay	1998063	Jun/15/1998	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	1998064	Jun/15/1998	Bluegill, Carp, Channel Catfish, Freshwater Drum, Walleye
Lake St. Clair	L'Anse Creuse Bay	2002059	May/23/2002	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	2005055	Jun/01/2005	Carp, Walleye
Lake St. Clair	Michigan waters	85014	Sep/10/1985	Muskellunge
Lake St. Clair	Michigan waters	87035	Jun/18/1987	Bluegill, Channel Catfish, Freshwater Drum, Largemouth Bass, Rock Bass, Smallmouth Bass, Walleye
Lake St. Clair	Michigan waters	88026	Aug/19/1988	Bluegill, Freshwater Drum, Smallmouth Bass, White Bass, Yellow Perch
Lake St. Clair	Michigan waters	90054	Jul/15/1990	Lake Sturgeon
Lake St. Clair	Michigan waters	91056	Oct/28/1991	Lake Sturgeon, Walleye
Lake St. Clair	Michigan waters	2000108	Aug/28/2000	Lake Sturgeon
Lake St. Clair	Michigan waters	2001077	Jun/26/2001	Carp, Muskellunge, Smallmouth Bass, Walleye
Lake St. Clair	Michigan waters	2003069	Sep/15/2003	Smallmouth Bass
Lake St. Clair	St. Johns Marsh	85013	Jul/15/1985	Carp
Lake Superior	Carp River	95021	Oct/04/1995	Coho
Lake Superior	Carp River	97036	Oct/01/1997	Chinook, Coho
Lake Superior	Carp River	2000045	Oct/12/2000	Chinook
Lake Superior	Central	92076	Aug/19/1992	Lake Trout
Lake Superior	Central	96034	May/23/1996	Ciscowet, Lake Trout, Lake Whitefish

Waterbody	Location	Visit ID#	Date	Species
Lake Superior	Central	2000046	Apr/30/2000	Lake Herring, Lake Whitefish
Lake Superior	Chink Creek	95022	Oct/26/1995	Coho
Lake Superior	Chocolay River	94061	Nov/02/1994	Coho
Lake Superior	Copper Harbor	87007	Apr/29/1987	Lake Trout
Lake Superior	Grand Marais Harbor	84005	Jun/15/1984	Lake Trout
Lake Superior	Isle Royale	89046	Aug/09/1989	Lake Trout
Lake Superior	Isle Royale	92063	Aug/04/1992	Lake Trout
Lake Superior	Keweenaw Bay	91024	May/01/1991	Lake Trout
Lake Superior	Keweenaw Bay	93054	May/19/1993	Rainbow Smelt
Lake Superior	Keweenaw Bay	93055	May/03/1993	Lake Trout
Lake Superior	Keweenaw Bay	96035	May/23/1996	Lake Trout
Lake Superior	Keweenaw Bay	1999039	May/13/1999	Lake Trout
Lake Superior	Keweenaw Bay	2001078	Apr/30/2001	Lake Trout
Lake Superior	Keweenaw Bay	2003070	May/29/2003	Ciscowet
Lake Superior	Keweenaw Bay	2004063	May/04/2004	Lake Trout
Lake Superior	Keweenaw Bay, Keystone Point	92073	Jul/31/1992	Ciscowet, Lake Whitefish
Lake Superior	Keweenaw Bay, L'Anse Bay	89029	Apr/24/1989	Lake Trout
Lake Superior	Keweenaw Bay, Traverse Island	91060	May/01/1991	Lake Trout
Lake Superior	Keweenaw Bay, Traverse Island	2001079	Jun/08/2001	Ciscowet
Lake Superior	Laughing Whitefish River	88036	Sep/27/1988	Chinook
Lake Superior	Manitou Island	87072	Jun/26/1987	Ciscowet
Lake Superior	Marquette	86031	Jun/06/1986	Lake Trout, Lake Whitefish
Lake Superior	Marquette	87009	Apr/27/1987	Lake Trout
Lake Superior	Marquette	89028	Apr/27/1989	Lake Trout
Lake Superior	Marquette	92042	Jun/19/1991	Ciscowet
Lake Superior	Marquette	92074	Aug/18/1992	Ciscowet, Lake Whitefish
Lake Superior	Marquette	93089	Jul/01/1993	Lake Whitefish
Lake Superior	Marquette	95065	Dec/13/1995	Ciscowet
Lake Superior	Marquette	96038	Jun/10/1996	Ciscowet, Lake Trout, Lake Whitefish
Lake Superior	Marquette	2002060	May/13/2002	Lake Trout, Lake Whitefish
Lake Superior	Middle Branch Ontonagon River	1999040	Nov/15/1999	Brown Trout
Lake Superior	Mineral River	1998134	Jun/07/1998	Longnose Sucker
Lake Superior	Munising	87069	Aug/10/1987	Ciscowet
Lake Superior	Munising	94056	Dec/16/1994	Lake Herring
Lake Superior	Munising	95066	Jul/27/1995	Lake Herring
Lake Superior	Ontonagon	85028	Aug/01/1985	Lake Trout, Lake Whitefish, White Sucker
Lake Superior	Otter River Fish Ladder	2000119	May/27/2000	Lake Sturgeon
Lake Superior	Pendills Creek	96037	Sep/15/1996	Coho
Lake Superior	Portage Lake/Dollar Bay	2003157	Sep/12/2003	Lake Sturgeon
Lake Superior	Tahquamenon River	84003	May/10/1984	Lake Whitefish
Lake Superior	West of Keweenaw Peninsula	87008	Apr/28/1987	Lake Trout
Lake Superior	West of Keweenaw Peninsula	87071	Jun/25/1987	Ciscowet
Lake Superior	West of Keweenaw Peninsula	92077	Jul/13/1992	Ciscowet
Lake Superior	Whitefish Bay	93090	Jul/30/1993	Yellow Perch

Waterbody	Location	Visit ID#	Date	Species
Lakeville Lake	Oakland County	2000047	Apr/22/2000	Carp, Largemouth Bass
Langford Lake	Gogebic County	86030	Jul/08/1986	Bluegill, Northern Pike, Walleye
Langford Lake	Gogebic County	94051	Jul/20/1994	Northern Pike, Walleye
LeFarge Corp. Discharge Canal	Below quarry	94033	May/19/1994	Channel Catfish
Lily Lake	Clare County	90064	Aug/23/1990	Largemouth Bass, Northern Pike
Lincoln Lake	Kent County	88033	Sep/14/1988	Northern Pike, Rock Bass, Walleye
Little Black Creek	DPW Wetland	2004136	Jul/01/2004	Channel Catfish
Little Black Creek	Mouth	2004137	Jul/01/2004	Channel Catfish
Little Black Creek	US-31	2004134	Jul/01/2004	Channel Catfish
Little Lake	Marquette County	2002043	May/24/2002	Walleye
Little Oxbow Lake	Gogebic County	2005056	Nov/01/2005	Largemouth Bass, Walleye
Littlefield Lake	Isabella County	95014	May/24/1995	Bluegill, Largemouth Bass
Lobdell Lake	Genesee County	2003072	May/20/2003	Carp, Largemouth Bass
Long Lake	Ionia County	90035	Oct/01/1990	Largemouth Bass
Long Lake	Iosco County	90036	Jun/12/1990	Largemouth Bass, Northern Pike
Long Lake	Kalamazoo County	2002064	Oct/16/2002	Black Crappie
Long Lake	Kalamazoo County	2003153	Mar/28/2003	Brown Bullhead
Long Lake	Presque Isle County	2004066	Apr/14/2004	Smallmouth Bass, White Sucker
Long Lake	Presque Isle County	2006045	May/25/2006	Brown Bullhead, Smallmouth Bass
Long Lake	St. Joseph County	2001142	Nov/19/2001	Brown Bullhead, Largemouth Bass
Looking Glass River	Dewitt	1998132	May/20/1998	Rock Bass, White Sucker
Loon Lake	Oakland County	2000050	Jul/20/2000	Carp, Largemouth Bass, Smallmouth Bass
Lower Trout Lake	Oakland County	90049	Sep/27/1990	Largemouth Bass, Northern Pike
Lower Trout Lake	Oakland County	93062	May/27/1993	Largemouth Bass
Macatawa River	d/s River St. Bridge	2005060	Jun/24/2005	Channel Catfish
Macatawa River	N. Buoy 11	2005059	Jun/29/2005	Channel Catfish
Macatawa River	u/s 112th Ave	2005061	Jun/29/2002	Channel Catfish
Maceday Lake	Oakland County	91049	Sep/16/1991	Northern Pike
Maceday Lake	Oakland County	96040	Apr/24/1996	Northern Pike
Manistee Lake	Manistee County	91015	Jun/19/1991	Smallmouth Bass, Walleye
Manistee Lake	Manistee County	92027	May/12/1992	Black Crappie, Largemouth Bass, Rock Bass
Manistee Lake	Manistee County	95019	Jun/07/1995	Bluegill
Manistee River	Above Hodenpyl Dam	92034	Jun/09/1992	Carp
Manistee River	Above Hodenpyl Dam	94030	Jun/15/1994	Carp
Manistee River	Cameron Bridge	1998069	Aug/26/1998	Brown Trout
Manistee River	M-72	1998123	Aug/27/1998	White Sucker
Manistee River	Manistee, river mouth	90026	Aug/21/1990	Channel Catfish
Manistee River	Manistee, river mouth	95028	Jul/24/1995	Channel Catfish
Manistique Lake	Mackinac County	2003075	Apr/25/2003	Walleye
Manistique River	d/s Manistique Papers Dam	84009	Oct/18/1984	Redhorse Sucker, Walleye, White Sucker
Manistique River	d/s Manistique Papers Dam	85008	Jun/01/1985	Carp, Largemouth Bass, Walleye
Manistique River	d/s Manistique Papers Dam	88017	Aug/03/1988	Channel Catfish
Manistique River	d/s Manistique Papers Dam	93033	Jun/02/1993	Carp
Manistique River	d/s Manistique Papers Dam	2003077	Oct/07/2003	Redhorse Sucker, Smallmouth Bass, Walleye
Manistique River	d/s Manistique Papers Dam	2004072	Aug/02/2004	Carp, Redhorse Sucker, Rock Bass, Smallmouth Bass, Walleye
Manistique River	Manistique, above Dam	87090	Oct/21/1987	Northern Pike, Redhorse Sucker
Manistique River	Manistique, above Dam	93056	Jun/03/1993	Redhorse Sucker

Waterbody	Location	Visit ID#	Date	Species
Manistique River	Manistique, above Dam	2003076	Oct/08/2003	Redhorse Sucker
Manistique River	Manistique, river mouth	86035	Jul/31/1986	Carp, Walleye
Manistique River	Manistique, river mouth	90028.1	Sep/24/1990	Channel Catfish
Manistique River	Manistique, river mouth	2002067	Aug/21/2002	Channel Catfish
Manistique River	Soo Line RR Bridge	90028.2	Sep/24/1990	Channel Catfish
Manistique River	Soo Line RR Bridge	2002066	Aug/21/2002	Channel Catfish
Mann Creek	Moraine Lake	92041.2	Oct/21/1992	Northern Pike
Mann Creek	Sloan Lake	92041.1	Oct/21/1992	Northern Pike
Mann Creek	Sloan Lake	94001	May/25/1994	Bluegill, Northern Pike
Marion Lake	Gogebic County	87070	Jul/29/1987	Rock Bass, Walleye
Marten Lake	Iron County	85019	Oct/25/1985	Brown Bullhead, Northern Pike
McCormick Lake	Montmorency County	2004074	Jun/02/2004	Brown Trout
Menominee River	Badwater Impoundment	92024	Apr/17/1992	Walleye
Menominee River	Below Grand Rapids Dam	97038	May/27/1997	Carp, Redhorse Sucker
Menominee River	Below Quinnesec	88053	Oct/11/1988	Northern Pike, Redhorse Sucker, Smallmouth Bass, Walleye
Menominee River	Below Quinnesec	1999080	May/25/1999	Northern Pike
Menominee River	Below Sturgeon Falls Dam	92048	Jul/28/1992	Carp, Walleye
Menominee River	Below White Rapids Dam	97039	May/27/1997	Redhorse Sucker
Menominee River	Big Quinnesec Falls Flowage	95034	Apr/17/1995	Rock Bass, Walleye, White Sucker
Menominee River	Chalk Hills Impoundment	91030	Jul/08/1991	Carp, Walleye
Menominee River	Chalk Hills Impoundment	96041	Oct/13/1996	Carp, Redhorse Sucker, Walleye
Menominee River	Chalk Hills Impoundment	97040	May/27/1997	Redhorse Sucker
Menominee River	Dickenson County, Vulcan	86058	Oct/09/1986	Northern Pike, Redhorse Sucker, Smallmouth Bass, Walleye
Menominee River	Dickinson County, below Piers Gorge	89078	Sep/12/1989	Redhorse Sucker, Walleye
Menominee River	Dickinson County, Little Quinnesec Flowage	89079	Apr/21/1989	Carp, Walleye, White Sucker
Menominee River	Iron County	84017	Aug/01/1984	Rock Bass
Menominee River	Lower Scott Flowage, between Dams 1 and 2	90055	Oct/01/1990	Rock Bass, Walleye
Menominee River	Lower Scott Flowage, between Dams 1 and 2	91039	Jun/26/1991	Carp
Menominee River	Lower Scott Flowage, between Dams 1 and 2	94052	Jun/13/1994	Redhorse Sucker
Menominee River	Menominee, river mouth	88007	May/26/1988	Carp, Walleye
Menominee River	Menominee, river mouth	91040	Apr/20/1991	Lake Sturgeon
Menominee River	Menominee, river mouth	93031	Jun/01/1993	Carp
Menominee River	Menominee, river mouth	93039	Jun/30/1993	Channel Catfish
Menominee River	Menominee, river mouth	2001146	Oct/10/2000	Lake Sturgeon
Menominee River	Sturgeon Falls Impoundment	1999080	May/25/1999	Northern Pike
Menominee River	Upper Scott Flowage, Chappee Rapids	90057	Sep/20/1990	Rock Bass, Walleye
Menominee River	Upper Scott Flowage, Highway JJ	90056	Sep/27/1990	Rock Bass, Walleye
Menominee River	White Rapids Flowage	1999091	Oct/18/1999	Redhorse Sucker
Michigamme River	Iron County	84022	Aug/31/1984	Walleye
Michigamme River	Iron County, Michigamme Falls Impoundment	84025	Aug/24/1984	Black Crappie, Northern Pike, Pumpkinseed, Smallmouth Bass, Walleye, Yellow Perch
Michigamme River	Marquette County	84021	Aug/16/1984	Northern Pike, Walleye

Waterbody	Location	Visit ID#	Date	Species
Michigamme River	Michigamme Reservoir	84026	Jun/01/1984	Northern Pike, Walleye, White Sucker
Michigamme River	Michigamme Reservoir	92075	Sep/14/1992	Northern Pike, Walleye
Michigamme River	Michigamme Reservoir	95061	Oct/03/1995	Northern Pike, Walleye
Michigamme River	Michigamme Reservoir	1998072	Sep/29/1998	Northern Pike, Walleye
Michigamme River	Michigamme Reservoir	2000052	Sep/13/2000	Northern Pike, Walleye
Michigamme River	Peavy Pond	84023	Aug/10/1984	Northern Pike, Rock Bass, Walleye, White Sucker, Yellow Perch
Michigamme River	Peavy Pond	97043	Oct/30/1997	Burbot, Walleye
Michigamme River	Peavy Pond	1998145	Oct/13/1998	Lake Whitefish, Northern Pike, Rock Bass, Smallmouth Bass, Walleye, White Sucker, Yellow Perch
Milakokia Lake	Mackinac County	85061	Jun/18/1985	Walleye, White Sucker
Milakokia Lake	Mackinac County	94031	Jun/21/1994	Walleye, White Sucker, Yellow Perch
Mill Creek	Washtenaw County	89021	Jul/24/1989	White Sucker
Millecoquin Lake	Mackinac County	89038	May/11/1989	Northern Pike, Walleye
Millecoquin Lake	Mackinac County	92071	Aug/05/1992	Lake Sturgeon
Mona Lake	Muskegon County	87056	Jul/14/1987	Carp, Smallmouth Bass
Mona Lake	Muskegon County	2000055	Oct/25/2000	Carp, Smallmouth Bass, Walleye
Mona Lake	Muskegon County	2002069	Jul/08/2002	Carp
Montcalm Lake	Montcalm County	2003065	Jul/07/2003	Largemouth Bass
Montcalm Lake	Montcalm County	2004062	May/20/2004	Largemouth Bass
Morrison Lake	Ionia County	88002	May/03/1988	Carp, Largemouth Bass, Walleye, White Sucker
Morrison Lake	Ionia County	1998076	Oct/27/1998	Largemouth Bass
Morrison Lake	Ionia County	2003081	Jun/15/2003	Carp
Mullett Lake	Cheboygan County	88035	Oct/18/1988	Northern Pike, Smallmouth Bass, Walleye
Muskallonge Lake	Luce County	2002070	May/15/2002	Brown Bullhead, Northern Pike
Muskegon Lake	Muskegon County	83052	May/27/1983	Carp, Northern Pike
Muskegon Lake	Muskegon County	86061	Oct/29/1986	Carp, Largemouth Bass, Northern Pike, Walleye
Muskegon Lake	Muskegon County	87054	Jul/07/1987	Largemouth Bass, Smallmouth Bass, Walleye
Muskegon Lake	Muskegon County	93071	Aug/19/1993	Carp, Walleye
Muskegon Lake	Muskegon County	2001082	Sep/13/2001	Largemouth Bass, Smallmouth Bass
Muskegon Lake	Muskegon County	2002071	Sep/04/2002	Carp, Walleye
Muskegon River	M-82 at High Rollaway	2002074	Aug/20/2002	Channel Catfish
Muskegon River	Maple Island Road	2002075	Aug/20/2002	Channel Catfish
Muskegon River	Muskegon, river mouth	90020	Aug/07/1990	Channel Catfish
Muskegon River	Muskegon, river mouth	93038	Jun/09/1993	Carp
Muskegon River	Muskegon, river mouth	93042	Jul/01/1993	Channel Catfish
Muskegon River	Newaygo County, below Croton Dam	89002	Apr/10/1989	Walleye Eggs
Muskegon River	Newaygo County, below Croton Dam	93011	Apr/04/1993	Walleye
Muskegon River	Newaygo County, below Croton Dam	96042	Mar/29/1996	Redhorse Sucker, Walleye
Muskegon River	Newaygo County, Croton Dam Pond	91029	Apr/04/1991	Carp

Waterbody	Location	Visit ID#	Date	Species
Muskegon River	Newaygo County, Croton Dam Pond	93080	Jun/28/1993	Carp
Muskegon River	Newaygo County, Croton Dam Pond	95041	Sep/27/1995	Carp
Muskegon River	Newaygo County, Croton Dam Pond	97047	Sep/30/1997	Walleye, White Sucker
Muskegon River	Newaygo County, Croton Dam Pond	97048	Sep/30/1997	Carp, Yellow Perch
Muskegon River	Newaygo County, Croton Dam Pond	2000058	Sep/06/2000	Carp, Yellow Perch
Muskegon River	Newaygo County, Croton Dam Pond	2002076	Jul/08/2002	Carp
Muskegon River	Newaygo County, Croton Dam Pond	2005070	Jul/06/2005	Carp
Muskegon River	Vance Road	2002073	Aug/20/2002	Channel Catfish
Nawakwa Lake	Alger County	89055	Jun/20/1989	Northern Pike, Walleye
Nawakwa Lake	Alger County	1999076	May/06/1999	Northern Pike, Walleye
Net River	Iron County, The Wide Waters	89030	May/01/1989	Northern Pike, Walleye
Nettie Lake	Presque Isle County	95032	Jun/05/1995	Largemouth Bass, Northern Pike
Nettie Lake	Presque Isle County	2005114	Sep/21/2005	Smallmouth Bass
Nevins Lake	Montcalm County	2004076	Sep/07/2004	Largemouth Bass
North Lake Leelanau	Leelanau County	2002078	Apr/26/2002	White Sucker
North Lake Leelanau	Leelanau County	2003082	Oct/21/2003	Lake Trout
North Manistique Lake	Luce County	89048	Jun/07/1989	Northern Pike, Walleye, Yellow Perch
North Manistique Lake	Luce County	2003083	Apr/24/2003	Walleye, Yellow Perch
Norvell Lake	Jackson County	2001084	Oct/17/2001	Carp, Largemouth Bass
Nottawa River	Calhoun County	1998080	Jul/29/1998	Brown Trout, Northern Hogsucker, White Sucker
Ontonagon River	Bond Falls	1999047	Apr/18/1999	Walleye
Ontonagon River	Ontonagon, river mouth	92008	Aug/04/1992	Channel Catfish
Ontonagon River	Victoria Impoundment	88065	Jul/06/1988	Northern Pike, Walleye
Ontonagon River	Victoria Impoundment	2000060	May/17/2000	Walleye
Orchard Lake	Oakland County	87087	Sep/25/1987	Largemouth Bass, Northern Pike
Orchard Lake	Oakland County	89006	Jun/07/1989	Largemouth Bass, Northern Pike, Smallmouth Bass
Orchard Lake	Oakland County	94036	May/10/1994	Northern Pike
Ormes Lake	Gogebic County	2005071	Nov/01/2005	Largemouth Bass
Osmun Lake	Oakland County	1999048	Jul/07/1999	Carp, Largemouth Bass
Ottawa Lake	Iron County	86005	May/22/1986	Northern Pike, Rock Bass, Walleye
Ottawa River	Mouth	93047	Sep/29/1993	Carp, Largemouth Bass
Ottawa River	Mouth	2005074	Jun/28/2005	Channel Catfish
Otter Lake	Houghton County	2000061	May/25/2000	Walleye, White Sucker
Ox Creek	Berrien County	96043	Aug/06/1996	Largemouth Bass, White Sucker
Ox Creek	Mouth	2001092	Jul/30/2001	Channel Catfish
Paint Creek	Oakland County	1998081	Aug/19/1998	White Sucker
Paint Lake	Iron County	2003144	Jun/11/2003	Northern Pike
Paint River	Paint River Pond	84024	Aug/28/1984	Muskellunge, Rock Bass, Walleye, Yellow Perch
Palmer Lake	St. Joseph County	2001141	Aug/30/2001	Largemouth Bass
Parker Creek	Grand Traverse County	1998048	Jul/09/1998	Brown Trout
Paw Paw River	Above Ox Creek	2001093	Jul/30/2001	Channel Catfish
Paw Paw River	Below Ox Creek	2001094	Jul/30/2001	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Peach Lake	Ogemaw County	2004080	May/18/2004	Northern Pike
Pearl Lake	Benzie County	97050	Jan/01/1997	Northern Pike
Perch Lake	Iron County	88051	Oct/12/1988	Northern Pike, Walleye
Perch Lake	Marquette County	84020	Aug/16/1984	Lake Whitefish, Longnose Sucker, Northern Pike, Rock Bass, Smallmouth Bass, White Sucker, Yellow Perch
Pere Marquette Lake	Mason County	89075	Aug/23/1989	Largemouth Bass, Northern Pike
Pere Marquette Lake	Mason County	2003086	May/05/2003	Northern Pike, White Sucker
Pere Marquette River	Downstream Ludington WWTP	2003090	Jul/16/2003	Channel Catfish
Pere Marquette River	Lake County	2004081	Sep/03/2004	Brown Trout
Pere Marquette River	Ludington, river mouth	90027	Sep/18/1990	Channel Catfish
Pere Marquette River	Ludington, river mouth	93037	Jun/09/1993	Redhorse Sucker
Pere Marquette River	Ludington, river mouth	93041	Jul/01/1993	Channel Catfish
Pere Marquette River	Scottville Rd	2003088	Jul/16/2003	Channel Catfish
Pere Marquette River	South Branch Rd	2003087	Jul/16/2003	Channel Catfish
Pere Marquette River	Upstream Ludington WWTP	2003089	Jul/16/2003	Channel Catfish
Pere Marquette River, Little Branch	17 Mile Rd	2003071	Jul/16/2003	Channel Catfish
Pere Marquette River, Little South Branch	Lake County	2004082	Aug/24/2004	Brown Trout, White Sucker
Pere Marquette River, Little South Branch	Taylor Bridge	94032	Aug/17/1993	Brown Trout
Pickerel Lake	Dickinson County	87082	Sep/24/1987	Largemouth Bass, Northern Pike
Pickerel Lake	Emmet County	89069	May/23/1989	Largemouth Bass, Smallmouth Bass, Walleye
Pigeon River	Ottawa Co, at 136th Ave	2005129	Jun/28/2005	White Sucker
Pigeon River	Vistula Rd.	2005076	Sep/14/2005	Redhorse Sucker, Rock Bass, Smallmouth Bass
Pike Lake	Luce County	89056	Jun/28/1989	Walleye
Pine Lake	Barry County	95001	Mar/20/1995	Black Crappie, Northern Pike
Pine Lake	Manistee County	87042	Jun/02/1987	Brown Trout, Largemouth Bass, Rock Bass
Pine River	Above Alma	1998085	Oct/15/1998	Rock Bass, White Sucker
Pine River	Alma Impoundment	95018	Jun/07/1995	Carp, Largemouth Bass
Pine River	Below Alma Dam	97060	Jul/29/1997	Carp, Largemouth Bass
Pine River	Gordonville Road	2000070	Jul/20/2000	Channel Catfish
Pine River	Gordonville Road	2002014	Jul/16/2002	Channel Catfish
Pine River	Gratiot County, Alma	83047	May/31/1983	Carp
Pine River	Gratiot County, below St Louis Dam	83001	Oct/31/1983	Brown Bullhead, Carp, Common Shiner, Rock Bass, Smallmouth Bass, White Sucker
Pine River	Gratiot County, below St Louis Dam	85007	Aug/06/1985	Carp
Pine River	Gratiot County, below St Louis Dam	94021	Aug/23/1994	Carp
Pine River	Gratiot County, below St Louis Dam	97072	Oct/16/1997	Carp
Pine River	Harrison Road	1999049	Jun/24/1999	Channel Catfish
Pine River	Harrison Road	2000066	Jul/20/2000	Channel Catfish
Pine River	Harrison Road	2002011	Jul/16/2002	Channel Catfish
Pine River	M-46	1999050	Jun/24/1999	Channel Catfish
Pine River	M-46	2000067	Jul/20/2000	Channel Catfish
Pine River	M-46	2002012	Jul/16/2002	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Pine River	Midland County, Homer Road	85060	Apr/11/1985	Carp, Smallmouth Bass, White Sucker
Pine River	Mill Street	2000068	Jul/20/2000	Channel Catfish
Pine River	Montcalm County, Edmore	86041	Jul/29/1986	Brown Trout, Hognose sucker, Redhorse Sucker, White Sucker
Pine River	Nine Mile Road	1999053	Jun/24/1999	Channel Catfish
Pine River	St. Clair	97051	Sep/17/1997	Channel Catfish
Pine River	St. Clair County, Griswold Road	92009	Jul/30/1992	Carp
Pine River	St. Louis	96500	Oct/15/1996	Muskrat, Raccoon
Pine River	St. Louis Impoundment	86042	Aug/07/1986	Carp, Crappie, Largemouth Bass, Northern Pike, Smallmouth Bass
Pine River	St. Louis Impoundment	89027	Apr/27/1989	Black Crappie, Carp, Largemouth Bass
Pine River	St. Louis Impoundment	95005	Apr/24/1995	Black Crappie, Carp
Pine River	St. Louis Impoundment	97071	Oct/17/1997	Carp, Smallmouth Bass
Pine River	St. Louis Impoundment	2002103	Jul/16/2002	Channel Catfish
Pine River	WWTP Bridge	1999052	Jun/24/1999	Channel Catfish
Pine River	WWTP Bridge	2000069	Jul/20/2000	Channel Catfish
Pine River	WWTP Bridge	2002013	Jul/16/2002	Channel Catfish
Platte Lake	Benzie County	2004151	Jul/11/2004	Channel Catfish, Northern Pike, Smallmouth Bass, Walleye
Platte Lake	Benzie County	2005160	Sep/02/2005	Rock Bass
Platte River	Burnt Mill Road, Benzie County	1998087	Aug/05/1998	Brown Trout, White Sucker
Plum Creek	Monroe	1999090	Nov/01/1999	Black Buffalo, Carp, Channel Catfish, White Bass
Pomeroy Lake	Gogebic County	97052	Apr/30/1997	Walleye
Pomeroy Lake	Gogebic County	1999055	Apr/28/1999	Walleye
Pontiac Lake	Oakland County	92070	Jul/27/1992	Largemouth Bass
Pontiac Lake	Oakland County	94007	Oct/01/1994	Largemouth Bass
Pontiac Lake	Oakland County	97053	May/22/1997	Largemouth Bass
Pontiac Lake	Oakland County	1999056	Apr/06/1999	Largemouth Bass
Pontiac Lake	Oakland County	1999079	Apr/06/1999	Channel Catfish
Pontiac Lake	Oakland County	2003094	Jun/25/2003	Largemouth Bass
Portage Creek	Bryant Mill Pond	85050	Jul/01/1985	Carp
Portage Creek	Bryant Mill Pond	86023	Jul/08/1986	Carp
Portage Creek	Bryant Mill Pond	87047	Jul/14/1987	Carp
Portage Creek	Bryant Mill Pond	2000121	Aug/10/2000	Brown Trout, Carp
Portage Creek	Bryant Mill Pond	2001044	Aug/29/2001	Carp, White Sucker
Portage Creek	Bryant Mill Pond	2002108	Aug/19/2002	Carp
Portage Creek	Kalamazoo, Crosstown Pkwy.	89059	Aug/30/1989	Channel Catfish
Portage Creek	Monarch Pond	2001045	Oct/17/2001	Carp
Portage Creek	Mouth, Alcott St.	1999097	Sep/08/1999	Channel Catfish
Portage Lake	Houghton County	88016	Aug/04/1988	Brown Trout, Northern Pike, Walleye
Portage Lake	Houghton County	1998151	Sep/15/1998	Walleye, White Sucker
Portage Lake	Manistee County	90008	Jun/12/1990	Largemouth Bass, Northern Pike, Smallmouth Bass
Portage Lake	Manistee County	2004144	Oct/11/2004	Carp, Largemouth Bass, Northern Pike
Portage Lake	Washtenaw/Livingston County	89009	May/10/1989	Largemouth Bass, Walleye

Waterbody	Location	Visit ID#	Date	Species
Prairie River Lake	St. Joseph County	86043	Aug/12/1986	Largemouth Bass
Pratt Lake	Gladwin County	2003095	May/22/2003	Largemouth Bass
Pretty Lake	Luce County	2004083	Jun/22/2004	Walleye
Rabbit River	d/s Hamilton Dam	2003098	Sep/17/2003	Carp, Largemouth Bass, Northern Pike, Redhorse Sucker, Rock Bass
Rabbit River	d/s Hamilton, d/s 133TH	2003099	Aug/20/2003	Channel Catfish
Rabbit River	u/s Hamilton Dam	2003096	Sep/17/2003	Carp, Largemouth Bass, Northern Pike, Redhorse Sucker
Rabbit River	u/s Hamilton, d/s 38th St	2003097	Aug/20/2003	Channel Catfish
Rainbow Lake	Montcalm County	90045	Sep/21/1990	Largemouth Bass, Northern Pike
Raisin River	Above Monroe Dam	91050	Sep/25/1991	Carp
Raisin River	Above Monroe Dam	94010	Jun/10/1994	Carp
Raisin River	Above Monroe Dam	97054	Oct/02/1997	Carp
Raisin River	Above Monroe Dam	2000072	Oct/12/2000	Carp
Raisin River	Above Monroe Dam	2004086	Oct/06/2004	Carp
Raisin River	Below Turning Basin	1998091	Sep/10/1998	Channel Catfish
Raisin River	Below Turning Basin	2004089	Aug/11/2004	Channel Catfish
Raisin River	Monroe County, above Monroe Dam	87024	Jun/09/1987	Carp, Smallmouth Bass
Raisin River	Monroe County, above Monroe Dam	2004085	Oct/06/2004	Carp
Raisin River	Monroe, below Winchester Bridge	83044	Apr/22/1983	Carp
Raisin River	Monroe, below Winchester Bridge	84015	Jun/28/1984	Carp, Largemouth Bass, Rock Bass, Smallmouth Bass
Raisin River	Monroe, below Winchester Bridge	86019	Jun/19/1986	Carp, White Bass
Raisin River	Monroe, below Winchester Bridge	1998089	Sep/18/1998	Carp, Freshwater Drum, Smallmouth Bass
Raisin River	Monroe, river mouth	91018	Sep/06/1991	Channel Catfish
Raisin River	Monroe, river mouth	1998090	Sep/10/1998	Channel Catfish
Raisin River	Monroe, river mouth	2004091	Aug/11/2004	Channel Catfish
Raisin River	Near Grand Trunk RR Bridge	1998092	Sep/10/1998	Channel Catfish
Raisin River	Near Grand Trunk RR Bridge	2004088	Aug/11/2004	Channel Catfish
Raisin River, South Branch	Lenawee County, below Adrian	91051	Aug/29/1991	Carp, Northern Pike, Redhorse Sucker
Randall Lake Chain	Craig Lake	90014.2	Jun/27/1990	Largemouth Bass, Northern Pike
Randall Lake Chain	Randall Lake	90014.1	Jun/27/1990	Black Crappie, Largemouth Bass, Northern Pike
Rapid River	Kalkaska County	1998137	Sep/01/1998	Brown Trout
Red Cedar River	Gramer Road	91019.2	Jun/27/1991	Carp
Red Cedar River	Gregory Road	91019.1	Jun/27/1991	Carp, Northern Pike
Red Cedar River	M-52	91019.3	Jun/27/1991	Carp, Northern Pike
Red Cedar River	Mouth	2001015	Jul/23/2001	Channel Catfish
Red Cedar River	MSU	2000075	Aug/01/2000	Carp, Northern Pike, Rock Bass, Smallmouth Bass
Red Cedar River	MSU	2001096	Apr/27/2001	Carp, Northern Pike, Rock Bass
Reed's Lake	Kent County	89070	Sep/20/1989	Largemouth Bass, Northern Pike
Reed's Lake	Kent County	1998094	Oct/30/1998	Northern Pike, Walleye
Rice Lake	Houghton County	91027	May/02/1991	Northern Pike, Walleye
Rifle River	Arenac County	88040	Aug/22/1988	Redhorse Sucker, Rock Bass
Robinson Creek	Roscommon	89053	Jul/12/1989	Brook Trout, Brown Trout

Waterbody	Location	Visit ID#	Date	Species
Robinson Lake	Newaygo County	2004095	May/06/2004	Northern Pike
Rogue River	11 Mile/Granger	1998095	Aug/17/1998	Brown Trout, White Sucker
Rogue River	Kent County, above Rockford Dam	93072	Nov/01/1993	White Sucker
Roland Lake	Houghton County	87040	Jun/30/1988	Rock Bass, Smallmouth Bass
Rouge River	Bell Branch	92040	Aug/25/1992	Channel Catfish
Rouge River	Below M-153	95059	Apr/24/1995	Carp, Northern Pike, White Sucker
Rouge River	Below M-153	2005077	Nov/04/2005	Carp, Redhorse Sucker
Rouge River	Below Newburgh Lake	2000116	Oct/04/2000	Channel Catfish
Rouge River	Below Phoenix Lake	2000077	Aug/28/2000	Channel Catfish
Rouge River	Dearborn, river mouth	86016	Jun/24/1986	Carp
Rouge River	Dearborn, river mouth	92010	Aug/25/1992	Channel Catfish
Rouge River	Dearborn, river mouth	95044	Oct/09/1995	Channel Catfish
Rouge River	Dearborn, river mouth	2000079	Aug/28/2000	Channel Catfish
Rouge River	Dearborn, river mouth	2000117	Oct/04/2000	Channel Catfish
Rouge River	Evergreen Road	95042	Oct/09/1995	Channel catfish
Rouge River	Greenfield Road	95043	Oct/09/1995	Channel Catfish
Rouge River	Oakland County, Lahser Road	87029	Jun/17/1987	Carp, Rock Bass, White Sucker
Rouge River	Wayne County, above turning basin	85012	Jun/19/1985	Carp
Rouge River	Wayne County, below Jefferson Ave	85011	Jun/19/1985	Carp
Rouge River	Wayne County, Eliza Howell Park	87031	Jun/17/1987	White Sucker
Rouge River	Wayne County, Eliza Howell Park	94015	Sep/13/1994	White Sucker
Rouge River, Lower Branch	Wayne County, Gulley Road	87025	Jun/16/1987	Carp
Rouge River, Middle Branch	d/s Nankin Dam	2005078	Nov/03/2005	Carp, Rock Bass, White Sucker
Rouge River, Middle Branch	Inkster Road below Newburg Lake	2002084	Sep/06/2002	White Sucker
Rouge River, Middle Branch	Newburgh Lake	88011	Jul/19/1988	Largemouth Bass, Northern Pike, White Sucker
Rouge River, Middle Branch	Newburgh Lake	93014	Nov/17/1993	Northern Pike, White Sucker
Rouge River, Middle Branch	Newburgh Lake	95024	May/30/1995	Bluegill, Largemouth Bass
Rouge River, Middle Branch	Newburgh Lake	2001097	Oct/30/2001	Carp, Channel Catfish, Largemouth Bass, White Sucker
Rouge River, Middle Branch	Newburgh Lake	2002085	Sep/24/2002	Carp, Channel Catfish, Northern Pike, White Sucker
Rouge River, Middle Branch	Newburgh Lake	2005079	Jun/02/2005	Carp, Channel Catfish, Northern Pike, White Sucker
Rouge River, Middle Branch	Oakland County, 9 Mile Road	87028	Jun/16/1987	Brown Bullhead, Carp, Channel Catfish, Rock Bass, White Sucker
Rouge River, Middle Branch	Phoenix Lake	88012	Jul/19/1988	Carp, Northern Pike, White Sucker
Rouge River, Middle Branch	Phoenix Lake	95023	Jun/13/1995	Bluegill, Carp
Rouge River, Middle Branch	Phoenix Lake	2001098	Oct/30/2001	Carp, Channel Catfish, Northern Pike
Rouge River, Middle Branch	Phoenix Lake	2002086	Oct/22/2002	Carp, Northern Pike, White Sucker
Rouge River, Middle Branch	u/s Nankin Dam	2005080	Nov/03/2005	Carp, Northern Pike, Rock Bass, White Sucker
Rouge River, Middle Branch	Wayne County, Haggerty/Hines Drain	87027	Jun/16/1987	Rock Bass, Smallmouth Bass, White Sucker
Rouge River, Middle Branch	Wayne County, Inkster Road	87026	Jun/16/1987	Goldfish
Rouge River, Middle Branch	Wayne County, Merriman Road	2000083	Jul/24/2000	White Sucker

Waterbody	Location	Visit ID#	Date	Species
Rouge River, Upper Branch	Oakland County, Powers Road	87032	Jun/17/1987	White Sucker
Rouge River, Upper Branch	Wayne County, 7 Mile Road	87030	Jun/17/1987	White Sucker
Round Lake	Delta County	87083	Sep/23/1987	Northern Pike, Walleye
Round Lake	Marquette County, Champion Twp	2005081	Jun/07/2005	Largemouth Bass
Ruddiman Creek	Lagoon	2001131	Sep/13/2001	Carp, Largemouth Bass
Runkle Lake	Iron County	85018	Jun/11/1985	Northern Pike
Runkle Lake	Iron County	2003104	Apr/21/2003	Northern Pike
Ruppert Lake	Kalamazoo County	2004099	May/28/2004	Largemouth Bass
Rush Lake	Van Buren County	2004100	Mar/23/2004	Northern Pike
Saginaw Bay	Gull Island	2005083	Jun/27/2005	Channel Catfish
Saginaw River	Bay County	86014	Jun/10/1986	Carp, Walleye
Saginaw River	Bay County, LaFayette	84013	Aug/09/1984	Carp, Northern Pike, White Bass
Saginaw River	Bay County, LaFayette	2004113	Aug/09/2004	Carp
Saginaw River	Bay County, river mouth	88020	Aug/01/1988	Channel Catfish
Saginaw River	Bay County, river mouth	92011	Aug/12/1992	Channel Catfish
Saginaw River	Bay County, river mouth	1998096	Sep/04/1998	Channel Catfish
Saginaw River	Bay County, river mouth	2002028	Jul/16/2002	Channel Catfish
Saginaw River	Bay County, river mouth	2005084	Jun/27/2005	Channel Catfish
Saginaw River	d/s Middle Ground Island (7th St. Bridge)	2005088	Jun/27/2005	Channel Catfish
Saginaw River	Detroit & Mack RR	2005086	Jun/27/2005	Channel Catfish
Saginaw River	Downstream Wilder Rd	2005085	Jun/27/2005	Channel Catfish
Saginaw River	Saginaw County, Crow Island	92036	Jul/15/1992	Carp
Saginaw River	Saginaw County, Saginaw	88021	Aug/01/1988	Channel Catfish
Saginaw River	Truman Parkway Bridge	2005087	Jun/27/2005	Channel Catfish
Saginaw River	u/s Middle Ground Island	1998097	Sep/04/1998	Channel Catfish
Saginaw River	u/s Middle Ground Island	2002027	Jul/16/2002	Channel Catfish
Saginaw River	u/s Middle Ground Island	2005289	Jun/27/2005	Channel Catfish
Saginaw River	Zilwaukee Bridge	1998098	Sep/04/1998	Channel Catfish
Saginaw River	Zilwaukee Bridge	2002026	Jul/16/2002	Channel Catfish
Sand Lake	Lenawee County	2003107	May/29/2003	Walleye
Sand Lake	Newaygo County	92058	May/22/1992	Black Crappie, Largemouth Bass
Schweitzer Creek	Schweitzer Reservoir	92047	Aug/07/1992	Northern Pike, Smallmouth Bass, Walleye
Sebewaing River	Huron County	88037	Oct/20/1988	Carp, Northern Pike
Sebewaing River	Huron County	2004114	Aug/11/2004	Carp, Northern Pike
Second Sister Lake	Washtenaw County	94062.1	Sep/20/1994	Brown Bullhead
Selkirk Lake	Allegan County	93057	May/20/1993	Largemouth Bass, Yellow Bullhead
Shiawassee River	City of Byron	95039	Jun/22/1995	Carp, Northern Pike
Shiawassee River	Exchange Road	2003109	Jul/22/2003	Carp, Smallmouth Bass
Shiawassee River	Fergus Road	2002022	Jul/16/2002	Channel Catfish
Shiawassee River	Genesee County, Duffield Road	81007	Jun/03/1981	Carp, Hognose Sucker, Northern Pike, Rock Bass, Sunfish
Shiawassee River	Henderson	92012	Sep/22/1992	Carp, Smallmouth Bass
Shiawassee River	Mouth	1998099	Sep/04/1998	Channel Catfish
Shiawassee River	Mouth	2002025	Jul/16/2002	Channel Catfish
Shiawassee River	Oakland County, Fish Lake Road	87062	Jul/28/1987	Carp, Largemouth Bass, Rock Bass
Shiawassee River	Saginaw County below Chesaning	87064	Aug/05/1987	Carp, Rock Bass, Smallmouth Bass

Waterbody	Location	Visit ID#	Date	Species
Shiawassee River	Saginaw County, Miller Road	88024	Aug/18/1988	Channel Catfish
Shiawassee River	Shiawassee County, Byron Road	81006	Jun/03/1981	Black Crappie, Carp, Northern Pike, Redhorse Sucker, Rock Bass, Sunfish
Shiawassee River	Shiawassee County, Byron Road	85002	Jul/17/1985	Carp, Redhorse Sucker, Rock Bass, Smallmouth Bass
Shiawassee River	Shiawassee County, New Lothrup Road	81008	Jun/03/1981	Black Crappie, Carp, Hognose Sucker, Minnow, Rock Bass, Sunfish, White Sucker
Shiawassee River	Shiawassee County, New Lothrup Road	85001	Jul/17/1985	Carp, Crappie, Rock Bass
Shiawassee River	Shiawassee County, New Lothrup Road	87066	Jul/30/1987	Carp, Northern Pike, Smallmouth Bass
Shiawassee River	Shiawassee Pond	81009	Jun/03/1981	Black Bullhead, Carp, Sunfish
Shiawassee River, South Branch	1/2 mile d/s of Howell	2004106	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	Between M59 & Byron	2004101	Jul/13/2004	Carp, Rock Bass, White Sucker
Shiawassee River, South Branch	Chase Lake Road	2004108	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	Howell	2004105	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	Livingston County, Bowen Road	81002	Jun/03/1981	Black Bullhead, Minnow, Northern Pike, Sunfish, White Sucker
Shiawassee River, South Branch	Livingston County, Bowen Road	84008	Jun/02/1984	Black Crappie, Grass Pickerel, Northern Pike, Rock Bass, White Sucker
Shiawassee River, South Branch	Livingston County, Chase Lake Road	81004	Jun/03/1981	Carp, Minnow, Northern Pike, Rock Bass, Sunfish, White Sucker, Yellow Bullhead
Shiawassee River, South Branch	Livingston County, Chase Lake Road	86036	Jul/30/1986	Carp, Northern Pike, Rock Bass, White Sucker
Shiawassee River, South Branch	Livingston County, Grand River Road	81001	Jun/03/1981	Minnow, Sunfish, White Sucker
Shiawassee River, South Branch	Livingston County, Marr Road	81003	Jun/03/1981	Carp, Minnow, Northern Pike, Sunfish, White Sucker, Yellow Bullhead
Shiawassee River, South Branch	Livingston County, Marr Road	87065	Jul/29/1987	Rock Bass, White Sucker
Shiawassee River, South Branch	Livingston County, Oak Grove Road	81005	Jun/03/1981	Black Crappie, Carp, Rock Bass, White Sucker
Shiawassee River, South Branch	Marr Road	2004107	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	u/s Byron	2004109	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	u/s M-59	2004104	Aug/11/2004	Channel Catfish
Shupac Lake	Crawford County	89044	May/23/1989	Largemouth Bass, Rainbow Trout, Smallmouth Bass, Yellow Perch
Silver Lake	Dickinson County	2002111	Jun/19/2002	Walleye
Silver Lead Creek	Marquette County, K.I. Sawyer AFB	96056	Nov/04/1996	Brook Trout
Siskiwit Lake	Isle Royale	87033	Jun/17/1987	Lake Trout
Siskiwit Lake	Isle Royale	93029	May/20/1993	Lake Trout, Lake Whitefish, Northern Pike
Siskiwit Lake	Isle Royale	96049	Aug/09/1996	Lake Trout
Siskiwit Lake	Isle Royale	96050	Aug/09/1996	Lake Trout
Siskiwit Lake	Isle Royale	2002105	Jun/29/2002	Lake Trout
Six Mile Lake	Charlevoix County	2003110	May/08/2003	Northern Pike
Six Mile Lake	Houghton County	95012	May/16/1995	Bluegill, Walleye
Smokey Lake	Iron County	86056	Oct/07/1986	Lake Trout, Rock Bass, Smallmouth Bass, White Sucker
South Branch Black River	Downstream of Bangor Dam	2002006	Aug/02/2002	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
South Branch Black River	Upstream of Bangor Dam	2002005	Aug/02/2002	Channel Catfish
South Groveland Pond	Dickinson County	2003146	Jun/04/2003	Walleye
South Lake	Washtenaw County	87020	Jun/09/1987	Largemouth Bass, Northern Pike, Rock Bass
South Lake	Washtenaw County	88062	Sep/19/1988	Largemouth Bass, Northern Pike
South Lake	Washtenaw County	89008	Jun/28/1989	Largemouth Bass, Northern Pike
South Manistique Lake	Mackinac County	88034	Sep/20/1988	Rock Bass, Walleye
South Manistique Lake	Mackinac County	91016	Apr/24/1991	Walleye
South Manistique Lake	Mackinac County	93027	Apr/28/1993	Walleye
South Manistique Lake	Mackinac County	95056	Apr/27/1995	Walleye
South Manistique Lake	Mackinac County	1998105	Apr/06/1998	Walleye
South Manistique Lake	Mackinac County	2001099	Nov/11/2001	Walleye
South Manistique Lake	Mackinac County	2003112	Apr/25/2003	Walleye
South Manistique Lake	Mackinac County	2005095	Apr/28/2005	Walleye
Sporley Lake	Marquette County	93058	Jun/01/1993	White Sucker
Sporley Lake	Marquette County	2004117	May/10/2004	Splake
Spring Brook	Kalamazoo County	1998106	Aug/19/1998	Brown Trout
Squaw Lake	Dickinson/Marquette County	89018	May/08/1989	Rainbow Trout, Splake, Yellow Perch
Squaw Lake	Dickinson/Marquette County	93059	May/18/1993	Largemouth Bass, White Sucker
St. Clair River	Algonac	83049	Jul/27/1983	Carp
St. Clair River	Algonac	86018	Jun/18/1986	Carp, Walleye
St. Clair River	Algonac	92061	Jun/21/1992	Carp, Walleye
St. Clair River	Algonac	94009	Aug/25/1994	Carp
St. Clair River	Algonac	2002093	May/24/2002	Carp
St. Clair River	Algonac	2005097	Jun/22/2005	Carp
St. Clair River	Marine City	91031	May/14/1991	Walleye
St. Clair River	Port Huron	86038	Jul/31/1986	Freshwater Drum, Walleye
St. Clair River	Rivermouth, North Channel	94008	Aug/25/1994	Carp, Freshwater Drum
St. Clair River	St. Clair	85006	Oct/10/1985	Walleye
St. Joseph River	Above Niles	2001086	Jul/30/2001	Channel Catfish
St. Joseph River	Above Niles Dam	95052	Jul/07/1995	Carp
St. Joseph River	Above Paw Paw River	2001090	Jul/30/2001	Channel Catfish
St. Joseph River	Below Buchanan	97065	Sep/16/1997	Channel Catfish
St. Joseph River	Below Buchanan	2001087	Jul/30/2001	Channel Catfish
St. Joseph River	Below Constantine	2003117	Jul/16/2003	Channel Catfish
St. Joseph River	Below Niles	97066	Sep/16/1997	Channel Catfish
St. Joseph River	Below Sturgis Dam	2003115	Jul/16/2003	Channel Catfish
St. Joseph River	Below Three Rivers	2003116	Jul/16/2003	Channel Catfish
St. Joseph River	Below Union City	2003113	Jul/16/2003	Channel Catfish
St. Joseph River	Below Union Lake	2003114	Jul/16/2003	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	89022	Aug/28/1989	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	93034	Jun/08/1993	Carp
St. Joseph River	Benton Harbor, river mouth	93045	Jul/01/1993	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	97063	Sep/16/1997	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	2001091	Jul/30/2001	Channel Catfish
St. Joseph River	Berrien Springs, below Dam	84004	Oct/03/1984	Carp, Smallmouth Bass
St. Joseph River	Berrien Springs, below Dam	87096	Nov/18/1987	Carp, Smallmouth Bass, Walleye
St. Joseph River	Berrien Springs, below Dam	97064	Sep/16/1997	Channel Catfish
St. Joseph River	Berrien Springs, below Dam	2001089	Jul/30/2001	Channel Catfish
St. Joseph River	Chapin Lake	83033	May/01/1983	Smallmouth Bass

Waterbody	Location	Visit ID#	Date	Species
St. Joseph River	Chapin Lake	83042	May/10/1983	Carp
St. Joseph River	Chapin Lake	87097	Nov/19/1987	Carp, Smallmouth Bass
St. Joseph River	Chapin Lake	91044	Aug/20/1991	Carp
St. Joseph River	Chapin Lake	93081	Oct/06/1993	Carp
St. Joseph River	Chapin Lake	95051	Jul/06/1995	Carp
St. Joseph River	Chapin Lake	95051.1	Jul/06/1995	Carp, Smallmouth Bass
St. Joseph River	Chapin Lake	2000088	Oct/17/2000	Carp
St. Joseph River	Chapin Lake	2002094	Oct/21/2002	Carp
St. Joseph River	Chapin Lake	2005098	Oct/27/2005	Carp, Largemouth Bass, Smallmouth Bass
St. Joseph River	Chapin Lake	2005099	Oct/27/2005	Carp
St. Joseph River	Constantine Impoundment	1998110	Jun/24/1998	Channel Catfish, Redhorse Sucker
St. Joseph River	Mottville downstream of Ritz	2003118	Jul/16/2003	Channel Catfish
St. Joseph River	St. Joseph County, Constantine	92031	Apr/02/1992	Carp, Walleye
St. Joseph River	St. Joseph County, Three Rivers	92032	Apr/03/1992	Walleye
St. Joseph River	State Line, Berrien County	97067	Sep/16/1997	Channel Catfish
St. Joseph River	State Line, Berrien County	2003119	Jul/16/2003	Channel Catfish
St. Joseph River	Sturgis Impoundment	2004119	Oct/14/2004	Carp, Largemouth Bass
St. Marys River	Michigan Waters	95046	Aug/01/1995	Northern Pike, Walleye, Yellow Perch
St. Marys River	Michigan Waters	2004120	Apr/19/2004	Northern Pike, Walleye
St. Marys River	Munuscong Bay	86045	Aug/26/1986	Northern Pike, Walleye
St. Marys River	Munuscong Bay	91021	Apr/23/1991	Walleye
St. Marys River	Munuscong Bay	91059	Apr/23/1991	Walleye
St. Marys River	Munuscong Bay	93015	Apr/27/1993	Carp, Walleye
St. Marys River	Munuscong Bay	95004	Apr/17/1995	Carp, Walleye
St. Marys River	Munuscong Bay	95004.1	Apr/17/1995	Carp
St. Marys River	Munuscong Bay	1998112	Apr/29/1998	Carp, Walleye
St. Marys River	Munuscong Bay	2001102	Apr/23/2001	Walleye
St. Marys River	Munuscong Bay	2004121	Sep/08/2004	Carp
St. Marys River	Munuscong Bay	2004149	Sep/07/2004	Northern Pike
St. Marys River	Munuscong Bay	2005101	Apr/18/2005	Walleye
St. Marys River	N. Drummond Island	89035	May/11/1989	Yellow Perch
St. Marys River	Sugar Island	87049	Sep/11/1987	Northern Pike, Walleye, White Sucker
Stanley Lake	Iron County	90013	May/31/1990	Largemouth Bass, Smallmouth Bass, Walleye
Stanley Lake	Iron County	2001143	Sep/10/2001	Walleye
Stevenson Lake	Isabella County	2002096	May/08/2002	Brown Bullhead, Largemouth Bass, Northern Pike, Yellow Bullhead
Stony Creek Impoundment	Macomb County	89025	Apr/16/1989	Crappie, Northern Pike, Walleye
Sudden Lake	Ontonagon County	2001144	Oct/03/2001	Walleye
Sullivan Creek	USFWS-Sullivan Creek Hatchery	2005124	May/03/2005	Lake Trout
Sunday Lake	Gogebic County	2003126	May/29/2003	Black Crappie, Northern Pike, Walleye, Yellow Perch
Sunset Lake	Iron County	88049	Oct/11/1988	Northern Pike, Walleye
Swan Creek	Monroe County	86059	Oct/09/1986	White Sucker
Swartz Creek	Swartz Creek Golf Course	2003127	Aug/21/2003	Channel Catfish
Sylvan Lake	Newaygo County	2004141	Jun/22/2004	Largemouth Bass, Northern Pike

Waterbody	Location	Visit ID#	Date	Species
Tahquamenon River	Dollarville	1998114	Jul/06/1998	Walleye, White Sucker
Tahquamenon River	Luce County, Slater's Landing	88028	Aug/08/1988	Northern Pike, Walleye
Tannery Creek	Emmet County	87058	Jul/21/1987	Brook Trout
Tawas River	Iosco County	88058	Oct/14/1988	Northern Pike, White Sucker
Teal Lake	Marquette County	2004122	May/11/2004	Smallmouth Bass, Walleye
Teal Lake	Marquette County	2005106	Jun/01/2005	Walleye
Tepee Lake	Iron County	2003145	Jun/19/2003	Northern Pike
Terry Lake	Oakland County	1999064	Jul/07/1999	Carp, Largemouth Bass
Thompson Lake	Livingston County	86010	Jun/03/1986	Carp, Northern Pike, Yellow Perch
Thompson Lake	Livingston County	95038	Jun/13/1995	Black Crappie, Carp
Thompson Lake	Livingston County	2005107	May/18/2005	Black Crappie, Carp, Northern Pike
Thompson Lake	St. Joseph County	2002036	Jun/25/2002	Brown Bullhead, Largemouth Bass
Thornapple River	Ada Impoundment	2005130	Jul/19/2005	Carp, Smallmouth Bass
Thornapple River	Cascade Impoundment	2005131	Jul/19/2005	Smallmouth Bass
Thornapple River	Gresham Highway	1998117	Jul/02/1998	White Sucker
Thornapple River	Mouth	2001019	Jul/23/2001	Channel Catfish
Thornapple River	Thornapple Lake, Barry County	93016	May/12/1993	Largemouth Bass, Redhorse Sucker
Thousand Island Lake	Gogebic County	1999065	Apr/23/1999	Walleye
Thread Creek	Above Impoundment @ Perry	2003129	Aug/21/2003	Channel Catfish
Thread Creek	Genesee County	93017	Aug/30/1993	Carp, Northern Pike
Thread Creek	M-54 (Dort)	2003130	Aug/21/2003	Channel Catfish
Thread Creek	Near mouth @ Clifford	2003131	Aug/21/2003	Channel Catfish
Thread Creek	Thread Lake	2000092	Sep/28/2000	Carp, Largemouth Bass
Thunder Bay River	4-Mile Pond	2006082	May/25/2006	Smallmouth Bass
Thunder Bay River	Alpena County, Lake Besser	89052	Jun/29/1989	Carp, Redhorse Sucker, Smallmouth Bass, Walleye
Thunder Bay River	Alpena County, Lake Besser	93018	Oct/15/1993	Carp
Thunder Bay River	Alpena County, Lake Besser	2006083	May/24/2006	Brown Bullhead, Smallmouth Bass
Thunder Bay River	Alpena, river mouth	89024	Sep/02/1989	Channel Catfish
Thunder Bay River	Alpena, river mouth	96053	Aug/19/1996	Channel Catfish
Thunder Bay River	Seven Mile Pond	2002097	Oct/15/2002	Brown Bullhead, Largemouth Bass
Tittabawassee River	Cook Road	2002016	Jul/16/2002	Channel Catfish
Tittabawassee River	Freeland	2002019	Jul/16/2002	Channel Catfish
Tittabawassee River	Midland County, below Dow Dam	84010	Apr/03/1984	Carp, Walleye, White Sucker
Tittabawassee River	Midland County, below Dow Dam	87002	Apr/07/1987	Walleye
Tittabawassee River	Midland County, below Dow Dam	89001	Apr/06/1989	Walleye Eggs
Tittabawassee River	Midland County, below Dow Dam	92064	Oct/30/1992	Carp, Walleye
Tittabawassee River	Midland County, below Dow Dam	95013	Apr/06/1995	White Bass, White Sucker
Tittabawassee River	Midland County, below Dow Dam	1999066	May/26/1999	Carp, Smallmouth Bass
Tittabawassee River	Midland County, below Dow Dam	2000093	Jul/05/2000	Smallmouth Bass, Walleye
Tittabawassee River	Midland County, Smiths Crossing Road	83054	Aug/23/1983	Carp, Channel Catfish, Smallmouth Bass, Walleye

Waterbody	Location	Visit ID#	Date	Species
Tittabawassee River	Midland County, Smiths Crossing Road	85015	Apr/17/1985	Walleye
Tittabawassee River	Midland County, Smiths Crossing Road	85016	May/23/1985	Black Crappie, Northern Pike, Smallmouth Bass, White Bass
Tittabawassee River	Midland County, Smiths Crossing Road	85017	Jul/16/1985	Walleye
Tittabawassee River	Midland County, Smiths Crossing Road	2000095	Jul/20/2000	Channel Catfish
Tittabawassee River	Midland County, Smiths Crossing Road	2002017	Jul/16/2002	Channel Catfish
Tittabawassee River	Midland County, Smiths Crossing Road	2003132	Apr/02/2003	Carp, Channel Catfish, Smallmouth Bass, Walleye, White Bass
Tittabawassee River	Mouth	1998119	Sep/04/1998	Channel Catfish
Tittabawassee River	Mouth	2002021	Jul/16/2002	Channel Catfish
Tittabawassee River	RR Bridge below Dow	2002018	Jul/16/2002	Channel Catfish
Tittabawassee River	Saginaw County, Center Road	88023	Aug/02/1988	Channel Catfish
Tittabawassee River	Saginaw County, Center Road	2002020	Jul/16/2002	Channel Catfish
Tittabawassee River	Sanford Lake	89004	Apr/07/1989	Black Crappie, Northern Pike, Walleye
Tittabawassee River	Sanford Lake	92065	Sep/15/1992	Carp
Tittabawassee River	Sanford Lake	1999081	May/20/1999	Black Crappie, Channel Catfish, Rock Bass
Tobico Wetland	Bay County	96054	May/21/1996	Carp, Northern Pike
Todd Lake	Osceola County	87041	Jul/02/1987	Largemouth Bass, Northern Pike
Tonquish Creek	Above Wayne Road, South of Joy Road	92039	Sep/14/1992	Channel Catfish
Torch Lake	Antrim County	91035	Sep/11/1991	Lake Trout, Smallmouth Bass
Torch Lake	Antrim County	93085	Nov/03/1993	Brown Trout, Lake Trout
Torch Lake	Antrim County	94054	Jul/15/1994	Lake Whitefish
Torch Lake	Antrim County	2000125	Mar/07/1996	Lake Trout
Torch Lake	Antrim County	2001110	Oct/08/2001	Lake Whitefish, Yellow Perch
Torch Lake	Houghton County	88015	Aug/23/1988	Northern Pike, Smallmouth Bass, Walleye
Torch Lake	Houghton County	2000096	May/03/2000	Northern Pike, Smallmouth Bass, Walleye
Tucker Lake	Leelanau County	2005127	Jun/03/2005	Brown Bullhead
Two Hearted River	Mouth	92013	Aug/04/1992	Channel Catfish
Union Lake	Branch County	91026	Jun/12/1991	Carp, Channel Catfish, Crappie, Northern Pike
Union Lake	Branch County	2003135	Jun/17/2003	Carp, Channel Catfish, Largemouth Bass, Walleye
Union Lake	Oakland County	2002100	May/29/2002	Largemouth Bass, Smallmouth Bass
Unnamed Lake	Baraga County	2005108	Jun/06/2005	Largemouth Bass, Northern Pike, Yellow Perch
Unnamed Lake	Washtenaw County	89007	May/02/1989	Bullhead, Largemouth Bass
Van Auken Lake	Van Buren County	2004125	Mar/23/2004	Northern Pike
Van Etten Lake	Iosco County, Oscoda	90010	Jun/06/1990	Carp, Channel Catfish, Walleye
Vandercook Lake	Jackson County	88042	Sep/27/1988	Carp
Vermilac Lake	Baraga County	88029	May/16/1988	Northern Pike, Yellow Perch
Vermilac Lake	Baraga County	2001135	Oct/04/2001	Walleye
W. Branch Maple River	Emmet County	1998070	Jul/28/1998	Brown Trout, White Sucker
Wabascon Creek	Bedford	1998133	May/18/1998	Rock Bass, White Sucker

Waterbody	Location	Visit ID#	Date	Species
Wabasis Lake	Kent County	90047	Sep/25/1990	Largemouth Bass, Northern Pike
Walkup Lake	Newaygo County	1999075	Jun/21/1999	Bluegill
Walled Lake	Oakland County	88031	Aug/24/1988	Carp, Northern Pike
Walloon Lake	Charlevoix County	87023	Jun/04/1987	Smallmouth Bass
Walloon Lake	Charlevoix County	2000099	Oct/10/2000	Rock Bass, White Sucker, Yellow Bullhead, Yellow Perch
Wamplers Lake	Jackson/Lenawee County	89040	May/19/1989	Black Crappie, Largemouth Bass, Northern Pike
Wamplers Lake	Jackson/Lenawee County	94055	Oct/17/1994	Largemouth Bass, Northern Pike
Weldon Creek	Benson Road	2003137	Jul/16/2003	Channel Catfish
White Lake	Muskegon County	80001	Jul/02/1980	Carp, Largemouth Bass, Northern Pike, Redhorse Sucker, Smallmouth Bass, White Sucker, Yellow Perch
White Lake	Muskegon County	84001	Jul/24/1984	Carp, Northern Pike, Redhorse Sucker, Smallmouth Bass, Walleye
White Lake	Muskegon County	87057	Jul/14/1987	Smallmouth Bass, Walleye
White Lake	Muskegon County	91046	Aug/21/1991	Carp, Walleye
White Lake	Muskegon County	2004126	Sep/13/2004	Carp, Smallmouth Bass, Walleye
White Lake	Oakland Co.	2001111	Oct/18/2001	Brown Bullhead, Rock Bass
White River	White Lake outlet, river mouth	92014	Aug/18/1992	Channel Catfish
Whitmore Lake	Livingston County	92038	Jun/09/1992	Carp, Largemouth Bass, Northern Pike
Wixom Lake	Gladwin County	2002102	May/16/2002	Channel Catfish, Northern Pike
Wolf Creek	Montcalm County, Grove Road	2000103	Sep/18/2000	White Sucker
Wolf Creek	Montcalm County, Vickeryville Road	92015	Jun/01/1992	Brown Trout, Rock Bass
Woodland Lake	Livingston County	2000104	May/02/2000	Carp, Largemouth Bass

APPENDIX B

INVENTORY OF WHOLE FISH TREND MONITORING SITES AND SPECIES

Waterbody	Location	Visit ID#	Date	Species
Detroit River	Grassy Island	90033	Aug/28/1990	Carp, Walleye
Detroit River	Grassy Island	92033	Aug/17/1992	Carp, Walleye
Detroit River	Grassy Island	94050	Aug/25/1994	Carp, Walleye
Detroit River	Grassy Island	96009	Jul/12/1996	Carp, Walleye
Detroit River	Grassy Island	1998025	Sep/22/1998	Carp, Walleye
Detroit River	Grassy Island	2001009	Oct/18/2001	Carp, Walleye
Detroit River	Grassy Island	2004020	Jul/20/2004	Carp, Walleye
Detroit River	Grassy Island	2005018	Jun/22/2005	Walleye
Grand River	Kent County, above 6th St. Dam	90030	Aug/22/1990	Carp
Grand River	Kent County, above 6th St. Dam	92053	Oct/01/1992	Carp
Grand River	Kent County, above 6th St. Dam	94002	Jun/23/1994	Carp
Grand River	Kent County, above 6th St. Dam	2000024	Oct/25/2000	Carp
Grand River	Kent County, above 6th St. Dam	2003042	Sep/20/2003	Carp
Grand River	Kent County, above 6th St. Dam	2005023	Jul/14/2005	Carp
Grand Sable Lake	Alger County	91010	May/20/1991	Lake Trout
Grand Sable Lake	Alger County	93006	Jun/01/1993	Lake Trout
Grand Sable Lake	Alger County	95047	Sep/07/1995	Lake Trout
Gull Lake	Kalamazoo County	91058	Sep/12/1991	Largemouth Bass
Gull Lake	Kalamazoo County	93063	Jun/10/1993	Largemouth Bass
Gull Lake	Kalamazoo County	95035	Jun/01/1995	Largemouth Bass
Gull Lake	Kalamazoo County	97011	Jun/15/1997	Largemouth Bass
Gull Lake	Kalamazoo County	2000025	Jul/11/2000	Largemouth Bass
Gull Lake	Kalamazoo County	2002034	Jun/30/2002	Largemouth Bass
Gull Lake	Kalamazoo County	2005026	Aug/09/2005	Largemouth Bass
Gun Lake	Barry County	90006	Jul/01/1990	Largemouth Bass
Gun Lake	Barry County	92066	Jun/15/1992	Largemouth Bass
Gun Lake	Barry County	94023	Jul/17/1994	Largemouth Bass
Gun Lake	Barry County	97012	Jul/17/1997	Largemouth Bass
Gun Lake	Barry County	2000026	Jul/25/2000	Largemouth Bass
Gun Lake	Barry County	2002035	Jun/06/2002	Largemouth Bass
Gun Lake	Barry County	2005027	Jul/07/2005	Largemouth Bass
Higgins Lake	Roscommon County	91001	May/02/1991	Lake Trout
Higgins Lake	Roscommon County	95057.2	Oct/31/1995	Lake Trout
Higgins Lake	Roscommon County	97013	Oct/22/1997	Lake Trout, Yellow Perch
Higgins Lake	Roscommon County	2000028	Oct/11/2000	Lake Trout
Higgins Lake	Roscommon County	2002037	Oct/02/2002	Lake Trout
Houghton Lake	Roscommon County	92037	Jun/13/1992	Largemouth Bass
Houghton Lake	Roscommon County	94006	Jun/07/1994	Largemouth Bass
Houghton Lake	Roscommon County	1998126	Jun/16/1998	Largemouth Bass
Houghton Lake	Roscommon County	2001026	Oct/11/2001	Largemouth Bass
Houghton Lake	Roscommon County	2004037	May/27/2004	Largemouth Bass
Kalamazoo River	Lake Allegan	90073	Oct/11/1990	Carp
Kalamazoo River	Lake Allegan	92018	Oct/27/1992	Carp
Kalamazoo River	Lake Allegan	94012	Jun/22/1994	Carp
Kalamazoo River	Lake Allegan	97016	Aug/28/1997	Carp
Kalamazoo River	Lake Allegan	1999016	Aug/05/1999	Carp

Waterbody	Location	Visit ID#	Date	Species
Kalamazoo River	Lake Allegan	2001056	Aug/23/2001	Carp
Kalamazoo River	Lake Allegan	2003147	Jun/07/2003	Carp
Kalamazoo River	Lake Allegan	2005036	Jun/16/2005	Carp
Lake Erie	Brest Bay	90003	Apr/09/1990	Carp, Walleye
Lake Erie	Brest Bay	92026	Apr/10/1992	Carp, Walleye
Lake Erie	Brest Bay	94026	Apr/19/1994	Carp, Walleye
Lake Erie	Brest Bay	97017	Apr/21/1997	Carp
Lake Erie	Brest Bay	1998051	Apr/15/1998	Carp, Walleye
Lake Erie	Brest Bay	2002044	Apr/26/2002	Carp
Lake Erie	Brest Bay	2003051	Oct/24/2003	Walleye
Lake Erie	Brest Bay	2004042	Oct/08/2004	Walleye
Lake Gogebic	Gogebic/Ontonagon County	92043	May/05/1992	Walleye
Lake Gogebic	Gogebic/Ontonagon County	94028	Apr/29/1994	Walleye
Lake Gogebic	Gogebic/Ontonagon County	97020	May/04/1997	Walleye, Yellow Perch
Lake Gogebic	Gogebic/Ontonagon County	2000031	Apr/18/2000	Walleye
Lake Gogebic	Gogebic/Ontonagon County	2002047	Apr/28/2002	Walleye
Lake Gogebic	Gogebic/Ontonagon County	2005040	Jun/10/2005	Walleye
Lake Huron	Saginaw Bay	90063	Apr/24/1990	Carp, Walleye
Lake Huron	Saginaw Bay	91041	Oct/02/1991	Walleye
Lake Huron	Saginaw Bay	92028	May/19/1992	Carp, Walleye
Lake Huron	Saginaw Bay	94037	Sep/26/1994	Carp, Walleye
Lake Huron	Saginaw Bay	1998139	Sep/21/1998	Carp, Walleye
Lake Huron	Saginaw Bay	2001059	Aug/22/2001	Carp
Lake Huron	Saginaw Bay	2003056	Aug/26/2003	Carp, Walleye
Lake Huron	Saginaw Bay	2005042	Oct/14/2005	Carp, Walleye
Lake Huron	Thunder Bay	91054	Jun/25/1991	Walleye
Lake Huron	Thunder Bay	92056	Jun/04/1992	Carp, Lake Trout
Lake Huron	Thunder Bay	94029	Jun/27/1994	Carp, Lake Trout
Lake Huron	Thunder Bay	95036	Jun/16/1995	Carp, Lake Trout, Spottail Shiner, Walleye
Lake Huron	Thunder Bay	1998054	Aug/22/1998	Lake Trout, Walleye
Lake Huron	Thunder Bay	1999028	Sep/28/1999	Carp, Yellow Perch
Lake Huron	Thunder Bay	2001062	Jun/13/2001	Carp, Lake Trout, Walleye
Lake Huron	Thunder Bay	2004048	May/20/2004	Carp, Lake Trout
Lake Huron	Thunder Bay	2005044	Jun/08/2005	Lake Trout, Walleye
Lake Michigan	Grand Traverse Bay	90074	Jun/20/1990	Lake Trout
Lake Michigan	Grand Traverse Bay	92059	Jul/15/1992	Lake Trout
Lake Michigan	Grand Traverse Bay	93010	Aug/12/1993	Carp
Lake Michigan	Grand Traverse Bay	95050	Jul/19/1995	Carp, Lake Trout
Lake Michigan	Grand Traverse Bay	1998057	Oct/07/1998	Lake Trout
Lake Michigan	Grand Traverse Bay	2000036	Sep/13/2000	Carp
Lake Michigan	Grand Traverse Bay	2001065	Aug/15/2001	Lake Trout
Lake Michigan	Grand Traverse Bay	2003060	Oct/31/2003	Carp
Lake Michigan	Grand Traverse Bay	2004053	May/18/2004	Lake Trout
Lake Michigan	Little Bay De Noc	92046	Jun/04/1992	Carp, Walleye
Lake Michigan	Little Bay De Noc	94041	Apr/20/1994	Carp, Walleye
Lake Michigan	Little Bay De Noc	97026	Apr/28/1997	Walleye, Yellow Perch
Lake Michigan	Little Bay De Noc	2000039	Oct/05/2000	Carp, Walleye
Lake Michigan	Little Bay De Noc	2002055	Apr/19/2002	Walleye
Lake Michigan	Little Bay De Noc	2003061	Apr/15/2003	Carp

Waterbody	Location	Visit ID#	Date	Species
Lake Michigan	Little Bay De Noc	2005051	Apr/14/2005	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	90002	Apr/02/1990	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	92029	Jun/04/1992	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	94058	Jul/13/1994	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	1998063	Jun/15/1998	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	2002059	May/23/2002	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	2005055	Jun/01/2005	Carp, Walleye
Lake Superior	Keweenaw Bay	91024	May/01/1991	Lake Trout
Lake Superior	Keweenaw Bay	93055	May/03/1993	Lake Trout
Lake Superior	Keweenaw Bay	96035	May/23/1996	Lake Trout
Lake Superior	Keweenaw Bay	1999039	May/13/1999	Lake Trout
Lake Superior	Keweenaw Bay	2001078	Apr/30/2001	Lake Trout
Lake Superior	Keweenaw Bay	2004063	May/04/2004	Lake Trout
Manistee River	Above Hodenpyl Dam	92034	Jun/09/1992	Carp
Manistee River	Above Hodenpyl Dam	94030	Jun/15/1994	Carp
Manistique River	Manistique, above Dam	93056	Jun/03/1993	Redhorse Sucker
Manistique River	Manistique, above Dam	2003076	Oct/08/2003	Redhorse Sucker
Menominee River	Lower Scott Flowage, between Dams 1 and 2	91039	Jun/26/1991	Carp
Menominee River	Lower Scott Flowage, between Dams 1 and 2	94052	Jun/13/1994	Redhorse Sucker
Muskegon River	Newaygo County, Croton Dam Pond	91029	Apr/04/1991	Carp
Muskegon River	Newaygo County, Croton Dam Pond	93080	Jun/28/1993	Carp
Muskegon River	Newaygo County, Croton Dam Pond	95041	Sep/27/1995	Carp
Muskegon River	Newaygo County, Croton Dam Pond	97048	Sep/30/1997	Carp, Yellow Perch
Muskegon River	Newaygo County, Croton Dam Pond	2000058	Sep/06/2000	Carp, Yellow Perch
Muskegon River	Newaygo County, Croton Dam Pond	2002076	Jul/08/2002	Carp
Muskegon River	Newaygo County, Croton Dam Pond	2005070	Jul/06/2005	Carp
Pontiac Lake	Oakland County	92070	Jul/27/1992	Largemouth Bass
Pontiac Lake	Oakland County	94007	Oct/01/1994	Largemouth Bass
Pontiac Lake	Oakland County	97053	May/22/1997	Largemouth Bass
Pontiac Lake	Oakland County	1999056	Apr/06/1999	Largemouth Bass
Pontiac Lake	Oakland County	2003094	Jun/25/2003	Largemouth Bass
Raisin River	Above Monroe Dam	91050	Sep/25/1991	Carp
Raisin River	Above Monroe Dam	94010	Jun/10/1994	Carp
Raisin River	Above Monroe Dam	97054	Oct/02/1997	Carp
Raisin River	Above Monroe Dam	2000072	Oct/12/2000	Carp
Raisin River	Above Monroe Dam	2004086	Oct/06/2004	Carp
South Manistique Lake	Mackinac County	91016	Apr/24/1991	Walleye
South Manistique Lake	Mackinac County	93027	Apr/28/1993	Walleye
South Manistique Lake	Mackinac County	95056	Apr/27/1995	Walleye
South Manistique Lake	Mackinac County	1998105	Apr/06/1998	Walleye
South Manistique Lake	Mackinac County	2001099	Nov/11/2001	Walleye
South Manistique Lake	Mackinac County	2003112	Apr/25/2003	Walleye
South Manistique Lake	Mackinac County	2005095	Apr/28/2005	Walleye
St. Clair River	Algonac	92061	Jun/21/1992	Carp, Walleye

Waterbody	Location	Visit ID#	Date	Species
St. Clair River	Algonac	94009	Aug/25/1994	Carp
St. Clair River	Algonac	2002093	May/24/2002	Carp
St. Clair River	Algonac	2005097	Jun/22/2005	Carp
St. Joseph River	Chapin Lake	91044	Aug/20/1991	Carp
St. Joseph River	Chapin Lake	93081	Oct/06/1993	Carp
St. Joseph River	Chapin Lake	95051	Jul/06/1995	Carp
St. Joseph River	Chapin Lake	2000088	Oct/17/2000	Carp
St. Joseph River	Chapin Lake	2002094	Oct/21/2002	Carp
St. Joseph River	Chapin Lake	2005099	Oct/27/2005	Carp
St. Marys River	Munuscong Bay	91059	Apr/23/1991	Walleye
St. Marys River	Munuscong Bay	93015	Apr/27/1993	Carp, Walleye
St. Marys River	Munuscong Bay	95004	Apr/17/1995	Carp, Walleye
St. Marys River	Munuscong Bay	1998112	Apr/29/1998	Carp, Walleye
St. Marys River	Munuscong Bay	2001102	Apr/23/2001	Walleye
St. Marys River	Munuscong Bay	2004121	Sep/08/2004	Carp
St. Marys River	Munuscong Bay	2005101	Apr/18/2005	Walleye

APPENDIX C

INVENTORY OF CAGED FISH BIOCONCENTRATION STUDIES

Waterbody	Location	Visit ID#	Date	Species
Au Gres River	Au Gres, river mouth	91002	Sep/03/1991	Channel Catfish
Au Sable River	Oscoda, river mouth	91003	Sep/03/1991	Channel Catfish
Au Sable River	Oscoda, river mouth	96002	Aug/19/1996	Channel Catfish
Baldwin River	Near M-37	2003005	Jul/16/2003	Channel Catfish
Belle River	Marine City	97002	Sep/17/1997	Channel Catfish
Big South Branch Pere Marquette River	Walhalla Road	2003007	Jul/16/2003	Channel Catfish
Black Creek	Maple Island Rd	2005006	Jun/29/2005	Channel Catfish
Black Creek	Mill Iron Rd	2005007	Jun/29/2005	Channel Catfish
Black Creek	Mouth	2005008	Jun/29/2005	Channel Catfish
Black River	Mouth	2002007	Aug/02/2002	Channel Catfish
Black River	Port Huron, river mouth	93003	Aug/31/1993	Channel Catfish
Boardman River	Beitner Rd	2003011	Jul/17/2003	Channel Catfish
Boardman River	Eighth St Bridge	2003012	Jul/17/2003	Channel Catfish
Boardman River	Union Street, downstream WWTP	2003013	Jul/17/2003	Channel Catfish
Cass River	Saginaw County, M-13	88025	Aug/02/1988	Channel Catfish
Cass River	Saginaw County, M-13	2002024	Jul/16/2002	Channel Catfish
Chippewa River	9 Mile Road	2000004	Jul/20/2000	Channel Catfish
Chippewa River	Nature Center	2000005	Jul/25/2000	Channel Catfish
Chippewa River	Nature Center	2002015	Jul/16/2002	Channel Catfish
Clinton River	Mt. Clemens, VFW Hall	2001116	Aug/29/2001	Channel Catfish
Clinton River	Adams Road	2000009	Aug/28/2000	Channel Catfish
Clinton River	Bridgeview Road	1999070	Aug/06/1999	Channel Catfish
Clinton River	Bridgeview Road	2000015	Aug/28/2000	Channel Catfish
Clinton River	Cass Road	1999072	Aug/06/1999	Channel Catfish
Clinton River	Crystal Lake	2000007	Aug/28/2000	Channel Catfish
Clinton River	Harris Lake	1999074	Aug/06/1999	Channel Catfish
Clinton River	M-97	2000012	Aug/28/2000	Channel Catfish
Clinton River	Macomb County above I-94 overpass	97007	Sep/17/1997	Channel Catfish
Clinton River	Macomb County above I-94 overpass	1999071	Aug/06/1999	Channel Catfish
Clinton River	Macomb County above I-94 overpass	2000014	Aug/28/2000	Channel Catfish
Clinton River	Moravian/Belleview Road	2000013	Aug/28/2000	Channel Catfish
Clinton River	Mt. Clemens, City Park	2001115	Aug/29/2001	Channel Catfish
Clinton River	Mt. Clemens, Firehouse	2001117	Aug/29/2001	Channel Catfish
Clinton River	Mt. Clemens, Market Street	97006	Sep/17/1997	Channel Catfish
Clinton River	Mt. Clemens, river mouth	89023.1	Aug/29/1989	Channel Catfish
Clinton River	Mt. Clemens, river mouth	92003.1	Aug/17/1992	Channel Catfish
Clinton River	Mt. Clemens, river mouth	96005	Aug/20/1996	Channel Catfish
Clinton River	Mt. Clemens, river mouth	97008	Sep/17/1997	Channel Catfish
Clinton River	Mt. Clemens, river mouth	1999069	Aug/06/1999	Channel Catfish
Clinton River	Mt. Clemens, river mouth	2000016	Aug/28/2000	Channel Catfish
Clinton River	Opdyke Road	2000008	Aug/28/2000	Channel Catfish
Clinton River	Ryan Road, Utica	1999073	Aug/06/1999	Channel Catfish
Clinton River	Spillway Mouth	89023.2	Aug/29/1989	Channel Catfish
Clinton River	Spillway Mouth	92003.2	Aug/17/1992	Channel Catfish
Coldwater River	Union City	2003019	Jul/16/2003	Channel Catfish
Escanaba River	CR 420	2005122	Jun/29/2005	Channel Catfish
Escanaba River	Escanaba, river mouth	93040	Jun/30/1993	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Escanaba River	Escanaba, river mouth	2005121	Jun/29/2005	Channel Catfish
Flat River	Belding downstream WWTP	2003028	Aug/20/2003	Channel Catfish
Flat River	Belding upstream WWTP	2003027	Aug/20/2003	Channel Catfish
Flat River	Greenville downstream WWTP	2003026	Aug/20/2003	Channel Catfish
Flat River	Greenville upstream WWTP	2003025	Aug/20/2003	Channel Catfish
Flat River	Lowell	2001017	Jul/23/2001	Channel Catfish
Flat River	Lowell downstream WWTP	2003030	Aug/20/2003	Channel Catfish
Flat River	Lowell upstream WWTP	2003029	Aug/20/2003	Channel Catfish
Flint River	Above Flint @ Bray	2003036	Aug/21/2003	Channel Catfish
Flint River	Below Flint	2003033	Aug/21/2003	Channel Catfish
Flint River	Downstream Ragnone WWTP	2003038	Aug/21/2003	Channel Catfish
Flint River	Klam Road	2003034	Aug/21/2003	Channel Catfish
Flint River	M-15	2003035	Aug/21/2003	Channel Catfish
Flint River	Saginaw County, river mouth	88022	Aug/02/1988	Channel Catfish
Flint River	Saginaw County, river mouth	2002023	Jul/16/2002	Channel Catfish
Flint River	Saginaw County, river mouth	2003039	Aug/21/2003	Channel Catfish
Flint River	Upstream Ragnone WWTP	2003037	Aug/21/2003	Channel Catfish
Galien River	Mouth	2002031	Aug/02/2002	Channel Catfish
Grand River	Below Jackson, Thompkins Road	2001014	Jul/23/2001	Channel Catfish
Grand River	Below Lansing, Clintonia Road	2001016	Jul/23/2001	Channel Catfish
Grand River	Grand Haven, river mouth	90018	Sep/04/1990	Channel Catfish
Grand River	Grand Haven, river mouth	93043	Jul/01/1993	Channel Catfish
Grand River	Grand Haven, river mouth	2001020	Jul/23/2001	Channel Catfish
Grand River	Jackson, above Jackson WWTP	90025	Sep/05/1990	Channel Catfish
Grand River	Jackson, below Jackson WWTP	90024	Aug/08/1990	Channel Catfish
Grand River	M-21	2001018	Jul/23/2001	Channel Catfish
Grand River	Upstream Jackson, Reed Road	2001013	Jul/23/2001	Channel Catfish
Huron River	Downstream Belleville Lake	2002041	Aug/20/2002	Channel Catfish
Huron River	Downstream Ford Lake	2002040	Aug/20/2002	Channel Catfish
Huron River	Rockwood, river mouth	91012	Sep/06/1991	Channel Catfish
Huron River	Rockwood, river mouth	96015	Aug/20/1996	Channel Catfish
Huron River	Rockwood, river mouth	2002042	Aug/20/2002	Channel Catfish
Huron River	Upstream Dexter	2002039	Aug/20/2002	Channel Catfish
Kalamazoo River	Above Otsego City Dam	1999096	Sep/08/1999	Channel Catfish
Kalamazoo River	Above Otsego City Dam	2001035	Aug/22/2001	Channel Catfish
Kalamazoo River	Below Lake Allegan Dam	1999020	Sep/08/1999	Channel Catfish
Kalamazoo River	Below Otsego Dam	1999023	Sep/08/1999	Channel Catfish
Kalamazoo River	Below Otsego Dam	2001036	Aug/22/2001	Channel Catfish
Kalamazoo River	Below Trowbridge Dam, 26th St. Bridge	1999022	Sep/08/1999	Channel Catfish
Kalamazoo River	Below Trowbridge Dam, 26th St. Bridge	2001037	Aug/22/2001	Channel Catfish
Kalamazoo River	Ceresco (12 Mile Road)	1999099	Sep/08/1999	Channel Catfish
Kalamazoo River	Ceresco (12 Mile Road)	2000114	Oct/04/2000	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Kalamazoo River	Ceresco (12 Mile Road)	2001028	Aug/22/2001	Channel Catfish
Kalamazoo River	City of Allegan, M-89	1999021	Sep/08/1999	Channel Catfish
Kalamazoo River	City of Allegan, M-89	2001038	Aug/22/2001	Channel Catfish
Kalamazoo River	D-Avenue	2000112	Oct/04/2000	Channel Catfish
Kalamazoo River	D-Avenue	2001033	Aug/22/2001	Channel Catfish
Kalamazoo River	Galesburg, 35th St. Bridge	1999098	Sep/08/1999	Channel Catfish
Kalamazoo River	Galesburg, 35th St. Bridge	2001029	Aug/22/2001	Channel Catfish
Kalamazoo River	Kalamazoo Avenue	2000113	Oct/04/2000	Channel Catfish
Kalamazoo River	Lake Allegan	2000110	Jan/04/2000	Channel Catfish
Kalamazoo River	Lake Allegan	2001039	Aug/22/2001	Channel Catfish
Kalamazoo River	New Richmond, 58th Street	2001040	Aug/22/2001	Channel Catfish
Kalamazoo River	Plainwell, M-89	2000111	Oct/04/2000	Channel Catfish
Kalamazoo River	Plainwell, M-89	2001034	Aug/22/2001	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	90019	Aug/07/1990	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	93044	Jul/01/1993	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	96016	Aug/21/1996	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	1999019	Sep/08/1999	Channel Catfish
Kalamazoo River	River mouth, Old US-31 Bridge	2001041	Aug/22/2001	Channel Catfish
Kawkawlin River	Route 13 (S. Huron Road)	2001127	Jul/23/2001	Channel Catfish
Kawkawlin River	Wheeler Road	2001128	Jul/23/2001	Channel Catfish
LeFarge Corp. Discharge Canal	Below quarry	94033	May/19/1994	Channel Catfish
Little Black Creek	DPW Wetland	2004136	Jul/01/2004	Channel Catfish
Little Black Creek	Mouth	2004137	Jul/01/2004	Channel Catfish
Little Black Creek	US-31	2004134	Jul/01/2004	Channel Catfish
Macatawa River	d/s River St. Bridge	2005060	Jun/24/2005	Channel Catfish
Macatawa River	N. Buoy 11	2005059	Jun/29/2005	Channel Catfish
Macatawa River	u/s 112th Ave	2005061	Jun/29/2002	Channel Catfish
Manistee River	Manistee, river mouth	90026	Aug/21/1990	Channel Catfish
Manistee River	Manistee, river mouth	95028	Jul/24/1995	Channel Catfish
Manistique River	Manistique, river mouth	90028.1	Sep/24/1990	Channel Catfish
Manistique River	Manistique, river mouth	2002067	Aug/21/2002	Channel Catfish
Manistique River	Soo Line RR Bridge	90028.2	Sep/24/1990	Channel Catfish
Manistique River	Soo Line RR Bridge	2002066	Aug/21/2002	Channel Catfish
Menominee River	Menominee, river mouth	93039	Jun/30/1993	Channel Catfish
Muskegon River	M-82 at High Rollaway	2002074	Aug/20/2002	Channel Catfish
Muskegon River	Maple Island Road	2002075	Aug/20/2002	Channel Catfish
Muskegon River	Muskegon, river mouth	90020	Aug/07/1990	Channel Catfish
Muskegon River	Muskegon, river mouth	93042	Jul/01/1993	Channel Catfish
Muskegon River	Vance Road	2002073	Aug/20/2002	Channel Catfish
Ontonagon River	Ontonagon, river mouth	92008	Aug/04/1992	Channel Catfish
Ottawa River	Mouth	2005074	Jun/28/2005	Channel Catfish
Ox Creek	Mouth	2001092	Jul/30/2001	Channel Catfish
Paw Paw River	Above Ox Creek	2001093	Jul/30/2001	Channel Catfish
Paw Paw River	Below Ox Creek	2001094	Jul/30/2001	Channel Catfish
Pere Marquette River	Downstream Ludington WWTP	2003090	Jul/16/2003	Channel Catfish
Pere Marquette River	Ludington, river mouth	90027	Sep/18/1990	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Pere Marquette River	Ludington, river mouth	93041	Jul/01/1993	Channel Catfish
Pere Marquette River	Scottville Rd	2003088	Jul/16/2003	Channel Catfish
Pere Marquette River	South Branch Rd	2003087	Jul/16/2003	Channel Catfish
Pere Marquette River	Upstream Ludington WWTP	2003089	Jul/16/2003	Channel Catfish
Pere Marquette River, Little Branch	17 Mile Rd	2003071	Jul/16/2003	Channel Catfish
Pine River	Gordonville Road	2000070	Jul/20/2000	Channel Catfish
Pine River	Gordonville Road	2002014	Jul/16/2002	Channel Catfish
Pine River	Harrison Road	1999049	Jun/24/1999	Channel Catfish
Pine River	Harrison Road	2000066	Jul/20/2000	Channel Catfish
Pine River	Harrison Road	2002011	Jul/16/2002	Channel Catfish
Pine River	M-46	1999050	Jun/24/1999	Channel Catfish
Pine River	M-46	2000067	Jul/20/2000	Channel Catfish
Pine River	M-46	2002012	Jul/16/2002	Channel Catfish
Pine River	Mill Street	2000068	Jul/20/2000	Channel Catfish
Pine River	Nine Mile Road	1999053	Jun/24/1999	Channel Catfish
Pine River	St. Clair	97051	Sep/17/1997	Channel Catfish
Pine River	St. Louis Impoundment	2002103	Jul/16/2002	Channel Catfish
Pine River	WWTP Bridge	1999052	Jun/24/1999	Channel Catfish
Pine River	WWTP Bridge	2000069	Jul/20/2000	Channel Catfish
Pine River	WWTP Bridge	2002013	Jul/16/2002	Channel Catfish
Portage Creek	Kalamazoo, Crosstown Pkwy.	89059	Aug/30/1989	Channel Catfish
Portage Creek	Monarch Mill Pond, Cork Street	2001031	Aug/22/2001	Channel Catfish
Portage Creek	Mouth, Alcott St.	1999097	Sep/08/1999	Channel Catfish
Portage Creek	Mouth, Alcott St.	2001030	Aug/22/2001	Channel Catfish
Rabbit River	d/s Hamilton, d/s 133TH	2003099	Aug/20/2003	Channel Catfish
Rabbit River	u/s Hamilton, d/s 38th St	2003097	Aug/20/2003	Channel Catfish
Raisin River	Below Turning Basin	1998091	Sep/10/1998	Channel Catfish
Raisin River	Below Turning Basin	2004089	Aug/11/2004	Channel Catfish
Raisin River	Monroe, river mouth	91018	Sep/06/1991	Channel Catfish
Raisin River	Monroe, river mouth	1998090	Sep/10/1998	Channel Catfish
Raisin River	Monroe, river mouth	2004091	Aug/11/2004	Channel Catfish
Raisin River	Near Grand Trunk RR Bridge	1998092	Sep/10/1998	Channel Catfish
Raisin River	Near Grand Trunk RR Bridge	2004088	Aug/11/2004	Channel Catfish
Red Cedar River	Mouth	2001015	Jul/23/2001	Channel Catfish
Rouge River	Bell Branch	92040	Aug/25/1992	Channel Catfish
Rouge River	Below Newburgh Lake	2000116	Oct/04/2000	Channel Catfish
Rouge River	Below Phoenix Lake	2000077	Aug/28/2000	Channel Catfish
Rouge River	Dearborn, river mouth	92010	Aug/25/1992	Channel Catfish
Rouge River	Dearborn, river mouth	95044	Oct/09/1995	Channel Catfish
Rouge River	Dearborn, river mouth	2000079	Aug/28/2000	Channel Catfish
Rouge River	Dearborn, river mouth	2000117	Oct/04/2000	Channel Catfish
Rouge River	Evergreen Road	95042	Oct/09/1995	Channel catfish
Rouge River	Greenfield Road	95043	Oct/09/1995	Channel Catfish
Saginaw Bay	Gull Island	2005083	Jun/27/2005	Channel Catfish
Saginaw River	Bay County, river mouth	88020	Aug/01/1988	Channel Catfish
Saginaw River	Bay County, river mouth	92011	Aug/12/1992	Channel Catfish
Saginaw River	Bay County, river mouth	1998096	Sep/04/1998	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Saginaw River	Bay County, river mouth	2002028	Jul/16/2002	Channel Catfish
Saginaw River	Bay County, river mouth	2005084	Jun/27/2005	Channel Catfish
Saginaw River	d/s Middle Ground Island (7th St. Bridge)	2005088	Jun/27/2005	Channel Catfish
Saginaw River	Detroit & Mack RR	2005086	Jun/27/2005	Channel Catfish
Saginaw River	Downstream Wilder Rd	2005085	Jun/27/2005	Channel Catfish
Saginaw River	Saginaw County, Saginaw	88021	Aug/01/1988	Channel Catfish
Saginaw River	Truman Parkway Bridge	2005087	Jun/27/2005	Channel Catfish
Saginaw River	u/s Middle Ground Island	1998097	Sep/04/1998	Channel Catfish
Saginaw River	u/s Middle Ground Island	2002027	Jul/16/2002	Channel Catfish
Saginaw River	u/s Middle Ground Island	2005289	Jun/27/2005	Channel Catfish
Saginaw River	Zilwaukee Bridge	1998098	Sep/04/1998	Channel Catfish
Saginaw River	Zilwaukee Bridge	2002026	Jul/16/2002	Channel Catfish
Shiawassee River	Fergus Road	2002022	Jul/16/2002	Channel Catfish
Shiawassee River	Mouth	1998099	Sep/04/1998	Channel Catfish
Shiawassee River	Mouth	2002025	Jul/16/2002	Channel Catfish
Shiawassee River	Saginaw County, Miller Road	88024	Aug/18/1988	Channel Catfish
Shiawassee River, South Branch	1/2 mile d/s of Howell	2004106	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	Chase Lake Road	2004108	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	Howell	2004105	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	Marr Road	2004107	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	u/s Byron	2004109	Aug/11/2004	Channel Catfish
Shiawassee River, South Branch	u/s M-59	2004104	Aug/11/2004	Channel Catfish
South Branch Black River	Downstream of Bangor Dam	2002006	Aug/02/2002	Channel Catfish
South Branch Black River	Upstream of Bangor Dam	2002005	Aug/02/2002	Channel Catfish
St. Joseph River	Above Niles	2001086	Jul/30/2001	Channel Catfish
St. Joseph River	Above Paw Paw River	2001090	Jul/30/2001	Channel Catfish
St. Joseph River	Below Buchanan	97065	Sep/16/1997	Channel Catfish
St. Joseph River	Below Buchanan	2001087	Jul/30/2001	Channel Catfish
St. Joseph River	Below Constantine	2003117	Jul/16/2003	Channel Catfish
St. Joseph River	Below Niles	97066	Sep/16/1997	Channel Catfish
St. Joseph River	Below Sturgis Dam	2003115	Jul/16/2003	Channel Catfish
St. Joseph River	Below Three Rivers	2003116	Jul/16/2003	Channel Catfish
St. Joseph River	Below Union City	2003113	Jul/16/2003	Channel Catfish
St. Joseph River	Below Union Lake	2003114	Jul/16/2003	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	89022	Aug/28/1989	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	93045	Jul/01/1993	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	97063	Sep/16/1997	Channel Catfish
St. Joseph River	Benton Harbor, river mouth	2001091	Jul/30/2001	Channel Catfish
St. Joseph River	Berrien Springs, below Dam	97064	Sep/16/1997	Channel Catfish
St. Joseph River	Berrien Springs, below Dam	2001089	Jul/30/2001	Channel Catfish
St. Joseph River	Mottville downstream of Ritz	2003118	Jul/16/2003	Channel Catfish
St. Joseph River	State Line, Berrien County	97067	Sep/16/1997	Channel Catfish
St. Joseph River	State Line, Berrien County	2003119	Jul/16/2003	Channel Catfish
Swartz Creek	Swartz Creek Golf Course	2003127	Aug/21/2003	Channel Catfish
Thornapple River	Mouth	2001019	Jul/23/2001	Channel Catfish
Thread Creek	Above Impoundment @ Perry	2003129	Aug/21/2003	Channel Catfish
Thread Creek	M-54 (Dort)	2003130	Aug/21/2003	Channel Catfish

Waterbody	Location	Visit ID#	Date	Species
Thread Creek	Near mouth @ Clifford	2003131	Aug/21/2003	Channel Catfish
Thunder Bay RiverAlp	ena, river mouth	89024	Sep/02/1989	Channel Catfish
Thunder Bay RiverAlp	ena, river mouth	96053	Aug/19/1996	Channel Catfish
Tittabawassee River	Cook Road	2002016	Jul/16/2002	Channel Catfish
Tittabawassee River	Freeland	2002019	Jul/16/2002	Channel Catfish
Tittabawassee River	Midland County, Smiths Crossing Road	2000095	Jul/20/2000	Channel Catfish
Tittabawassee River	Midland County, Smiths Crossing Road	2002017	Jul/16/2002	Channel Catfish
Tittabawassee River	Mouth	1998119	Sep/04/1998	Channel Catfish
Tittabawassee River	Mouth	2002021	Jul/16/2002	Channel Catfish
Tittabawassee River	RR Bridge below Dow	2002018	Jul/16/2002	Channel Catfish
Tittabawassee River	Saginaw County, Center Road	88023	Aug/02/1988	Channel Catfish
Tittabawassee River	Saginaw County, Center Road	2002020	Jul/16/2002	Channel Catfish
Tonquish Creek	Above Wayne Road, South of Joy Road	92039	Sep/14/1992	Channel Catfish
Two Hearted River	Mouth	92013	Aug/04/1992	Channel Catfish
Weldon Creek	Benson Road	2003137	Jul/16/2003	Channel Catfish
White River	White Lake outlet, river mouth	92014	Aug/18/1992	Channel Catfish

APPENDIX D

INVENTORY OF CONTAMINANT MONITORING SITES AND SPECIES SUMMARIZED IN THE MICHIGAN FISH CONTAMINANT MONITORING 2006 ANNUAL REPORT

Waterbody	Location	Visit ID#	Date	Species
Antoine Lake	Dickinson County	2005001	Nov/10/2005	Northern Pike, Walleye
Baldwin River	near M-37	2005004	Aug/18/2005	Brown Trout
Black Creek	Maple Island Rd	2005006	Jun/29/2005	Channel Catfish
Black Creek	Mill Iron Rd	2005007	Jun/29/2005	Channel Catfish
Black Creek	Mouth	2005008	Jun/29/2005	Channel Catfish
Carp Creek	u/s Deer Lake	2005013	Aug/25/2005	Brook Trout, White Sucker
Cass River	Above Caro	2005014	Aug/09/2005	Redhorse Sucker, Rock Bass
Craig Lake	Baraga County	2005015	Nov/08/2005	Black Crappie, Northern Pike, Walleye, White Sucker
Dead River	Forestville Basin	2005017	Jun/01/2005	Northern Pike, Walleye
Detroit River	Grassy Island	2005018	Jun/22/2005	Walleye
Escanaba River	CR 420	2005122	Jun/29/2005	Channel Catfish
Escanaba River	Escanaba, river mouth	2005121	Jun/29/2005	Channel Catfish
Fawn River	St. Joseph County, Stubey Road	2005019	Sep/14/2005	Carp, Smallmouth Bass
Fletcher Pond	Alpena County	2005020	May/16/2005	Northern Pike
Fremont Lake	Newaygo County	2005021	Jun/22/2005	Carp, Largemouth Bass
Grand River	Kent County, above 6th St. Dam	2005023	Jul/14/2005	Carp
Gratiot Lake	Keweenaw County	2005025	May/25/2005	Northern Pike, Smallmouth Bass, Walleye
Gull Lake	Kalamazoo County	2005026	Aug/09/2005	Largemouth Bass
Gun Lake	Barry County	2005027	Jul/07/2005	Largemouth Bass
Hanbury Lake	Dickinson County	2005028	May/02/2005	Largemouth Bass
Kalamazoo River	Lake Allegan	2005036	Jun/16/2005	Carp
King Lake	Baraga County	2005037	Apr/30/2005	Largemouth Bass
Lake Gogebic	Gogebic/Ontonagon County	2005040	Jun/10/2005	Walleye
Lake Huron	Saginaw Bay	2005042	Oct/14/2005	Carp, Walleye
Lake Huron	Thunder Bay	2005044	Jun/08/2005	Lake Trout, Walleye
Lake Huron	Thunder Bay	2005161	May/03/2005	9-spine stickleback, Smelt
Lake Independence	Marquette County	2005045	Apr/29/2005	Walleye
Lake Macatawa	Ottawa County	2005047	May/16/2005	Carp, Walleye
Lake Michigan	Green Bay	2004054	Apr/08/2004	Smallmouth Bass, White Sucker
Lake Michigan	Green Bay, Cedar River	2005050	Apr/15/2005	Longnose Sucker, Smallmouth Bass, Walleye, White Sucker
Lake Michigan	Little Bay De Noc	2005051	Apr/14/2005	Carp, Walleye
Lake St. Clair	L'Anse Creuse Bay	2005055	Jun/01/2005	Carp, Walleye
Little Oxbow Lake	Gogebic County	2005056	Nov/01/2005	Largemouth Bass, Walleye
Macatawa River	d/s River St. Bridge	2005060	Jun/24/2005	Channel Catfish
Macatawa River	N. Buoy 11	2005059	Jun/29/2005	Channel Catfish
Macatawa River	u/s 112th Ave	2005061	Jun/29/2002	Channel Catfish
Muskegon River	Newaygo County, Croton Dam Pond	2005070	Jul/06/2005	Carp
Nettie Lake	Presque Isle County	2005114	Sep/21/2005	Smallmouth Bass
Ormes Lake	Gogebic County	2005071	Nov/01/2005	Largemouth Bass
Ottawa River	Mouth	2005074	Jun/28/2005	Channel Catfish
Pigeon River	Ottawa Co, at 136th Ave	2005129	Jun/28/2005	White Sucker
Pigeon River	Vistula Rd.	2005076	Sep/14/2005	Redhorse Sucker, Rock Bass, Smallmouth Bass
Platte Lake	Benzie County	2004151	Jul/11/2004	Channel Catfish, Northern Pike, Smallmouth Bass, Walleye
Platte Lake	Benzie County	2005160	Sep/02/2005	Rock Bass
Rouge River	Below M-153	2005077	Nov/04/2005	Carp, Redhorse Sucker

Waterbody	Location	Visit ID#	Date	Species
Rouge River, Middle Branch	d/s Nankin Dam	2005078	Nov/03/2005	Carp, Rock Bass, White Sucker
Rouge River, Middle Branch	Newburgh Lake	2005079	Jun/02/2005	Carp, Channel Catfish, Northern Pike, White Sucker
Rouge River, Middle Branch	u/s Nankin Dam	2005080	Nov/03/2005	Carp, Northern Pike, Rock Bass, White Sucker
Round Lake	Marquette County, Champion Twp	2005081	Jun/07/2005	Largemouth Bass
Saginaw Bay	Gull Island	2005083	Jun/27/2005	Channel Catfish
Saginaw River	Bay County, river mouth	2005084	Jun/27/2005	Channel Catfish
Saginaw River	d/s Middle Ground Island (7th St. Bridge)	2005088	Jun/27/2005	Channel Catfish
Saginaw River	Detroit & Mack RR	2005086	Jun/27/2005	Channel Catfish
Saginaw River	Downstream Wilder Rd	2005085	Jun/27/2005	Channel Catfish
Saginaw River	Truman Parkway Bridge	2005087	Jun/27/2005	Channel Catfish
Saginaw River	u/s Middle Ground Island	2005289	Jun/27/2005	Channel Catfish
South Manistique Lake	Mackinac County	2005095	Apr/28/2005	Walleye
St. Clair River	Algonac	2005097	Jun/22/2005	Carp
St. Joseph River	Chapin Lake	2005098	Oct/27/2005	Carp, Largemouth Bass, Smallmouth Bass
St. Joseph River	Chapin Lake	2005099	Oct/27/2005	Carp
St. Marys River	Munuscong Bay	2005101	Apr/18/2005	Walleye
Stoney Creek Hatchery	Caged Fish Control Station	2005062	Jun/01/2005	Channel Catfish
Sullivan Creek	USFWS-Sullivan Creek Hatchery	2005124	May/03/2005	Lake Trout
Teal Lake	Marquette County	2005106	Jun/01/2005	Walleye
Thompson Lake	Livingston County	2005107	May/18/2005	Black Crappie, Carp, Northern Pike
Thornapple River	Ada Impoundment	2005130	Jul/19/2005	Carp, Smallmouth Bass
Thornapple River	Cascade Impoundment	2005131	Jul/19/2005	Smallmouth Bass
Tucker Lake	Leelanau County	2005127	Jun/03/2005	Brown Bullhead
Unnamed Lake	Baraga County	2005108	Jun/06/2005	Largemouth Bass, Northern Pike, Yellow Perch